Arizona Department of Transportation
Intermodal Transportation Division
Environmental Planning Group
205 South 17th Avenue
Phoenix, Arizona 85007

Draft Environmental Assessment

for

51ST AVENUE OVERPASS AT BETHANY HOME ROAD/GRAND AVENUE

Maricopa County, Arizona
TRACS No. 060 MA 157 H5537 01C
Project No. STP-060-B()

Approved by: _____ On: 7/11/01
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Approved by: _____ On: July 23, 2001
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This environmental assessment has been prepared in accordance with provisions and requirements of Chapter 1, Title 23 USC, 23 CFR Part 771, relating to the implementation of the National Environmental Policy Act of 1969.

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LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ADEQ	Arizona Department of Environmental Quality
ADES	Arizona Department of Economic Security
ADOT	Arizona Department of Transportation
AGFD	Arizona Game & Fish Department
AIRFA	American Indian Religious Freedom Act
ARS	Arizona Revised Statute
ASC	Alternative Selection Committee
BNSF	Burlington Northern Santa Fe Railway
CEQ	Council of Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COE	U.S. Army Corps of Engineers
EA	Environmental Assessment
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIP	Federal Implementation Plan
FIRM	Flood Insurance Rate Maps
IGA	Intergovernmental Agreement
LOS	Level of Service
LUST	Leaking Underground Storage Tank
MAG	Maricopa County Association of Governments
MIS	Major Investment Study
NAAQS	National Ambient Air Quality Standards
NAC	Noise Activity Category
NAP	Noise Abatement Policy
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NOT	Notice of Termination
NRHP	National Register of Historic Places
PISA	Preliminary Initial Site Assessment
PA	Programmatic Agreement
RCRA	Resource Conservation and Recovery Act
ROW	Right-of-Way
RPTA	Regional Public Transit Authority
SARA	Superfund Amendments and Reauthorization Act
SEE	Social, Economic, and Environmental
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SRP	Salt River Project
SWPPP	Stormwater Pollution Prevention Plan
TCE	Temporary Construction Easement
TIP	Transportation Improvement Program
USFWS	U.S. Fish & Wildlife Service
UST	Underground Storage Tank
WQARF	Water Quality Assurance Revolving Fund

MITIGATION MEASURES

The following mitigation measures and commitments are not subject to change or modification without the prior written approval of the Federal Highway Administration.

ADOT Design Responsibilities:

1. Traffic and access during construction would be maintained to adjoining businesses and residences. (Refer to page 18.)

2. ADOT would coordinate with the Burlington Northern Santa Fe Railway during the development of the traffic control plan. (Refer to page 18.)

3. The existing alignment of 51st Avenue within the project limits not used for traffic movement and/or utilities would be removed and landscaped. (Refer to page 18.)

4. ADOT and Regional Public Transit Authority would coordinate the relocation of bus stops during final design. (Refer to page 21.)

ADOT Roadside Development Responsibilities:

1. All embankments and detention basins would be covered with an inert ground cover and low-water use plants. Trees would be planted to help screen the detention basins from the view of motorists and residents within the adjacent residential areas. (Refer to page 29.)

2. Trees and additional landscaping would be planted along the southwest corner of Rose Lane Park, adjacent to 51st Avenue, to minimize view of the overpass structure from these facilities. ADOT would coordinate this landscape design with the City of Glendale. (Refer to page 35.)

3. ADOT Roadside Development Section would determine who would prepare the Storm Water Pollution Prevention Plan. (Refer to page 45.)

ADOT District Responsibilities:

1. Because 5 or more acres of land would be disturbed, a National Pollutant Discharge Elimination System permit would be required. The District Construction Office would submit the Notice of Intent and the Notice of Termination to the U.S. Environmental Protection Agency and copies to the Arizona Department of Environmental Quality. (Refer to page 45.)

Contractorís Responsibilities:

1. The contractor would provide notice to utility customers 14 days prior to any disruption of service, if applicable. (Refer to page 16.)

2. The contractor would notify the public at least 14 days prior to any full closures. No major closures would be permitted between Thanksgiving and January 1st. Detours would be coordinated with adjacent projects to avoid any potential conflicts. (Refer to page 18.)

3. Traffic and access during construction would be maintained to adjoining businesses and residences. (Refer to page 18.)

4. The contractor would notify adjacent property owners, residents, or businesses at least 14 days prior to construction. (Refer to page 18.)

5. The contractor would adhere to Maricopa Rule 310 and 360 regarding fugitive dust emissions and new source performance standards, respectively, during construction. (Refer to page 39.)

6. The contractor would be responsible for obtaining any necessary asbestos permits for demolition of any structures, if applicable. (Refer to page 39.)

7. In order to prevent the introduction of invasive species, all earth-moving and hauling equipment would be washed prior to entering the construction site. All embankment slopes would be landscaped with low-water use plants and covered with decomposed or crushed granite. (Refer to page 42.)

8. Because 5 or more acres of land would be disturbed, a National Pollutant Discharge Elimination System permit would be required. The contractor would submit the Notice of Intent and the Notice of Termination to the U.S. Environmental Protection Agency and copies to the Arizona Department of Environmental quality. (Refer to page 45.)

Standard Specifications Included as Mitigation Measures:

1. According to ***Arizona Department of Transportationís Standard Specifications for Road and Bridge Construction***, Section 107 Legal Relations and Responsibility to Public (2000 Edition) (Stored Specification 107.05 Archaeological Features),if previously unidentified cultural resources are encountered during activity related to the construction of the project, the contractor would stop work immediately at that location and would take all reasonable steps to secure the preservation of those resources and notify the ADOT Engineer. The Engineer would contact the Environmental Planning

Group immediately and make arrangements for the proper treatment of those resources. ADOT would, in turn, notify the appropriate agency(ies) to evaluate the resource. (Refer to page 32.)

2. Any material sources required for this project outside of the project area would be examined for environmental effects, by the contractor, prior to use, through a separate environmental analysis in accordance with ***Arizona Department of Transportationís Standard Specifications for Road and Bridge Construction,*** Section 1001 Material Sources (2000 Edition) (Stored Specification 1001.2 General). (Refer to page 45.)

3. During construction, the contractor would give special attention to the effect of its operations upon the landscape and would take special care to maintain natural surroundings undamaged in accordance with ***Arizona Department of Transportationís Standard Specifications for Road and Bridge Construction,*** Section 104.09 (2000 Edition) and the Water Quality Standards in Title 18, Chapter 11 of the Arizona Administrative Code as administered by the Arizona Department of Environmental Quality. (Refer to page 46.)

4. Excess waste material and construction debris would be disposed of at sites supplied by the contractor in accordance with ***Arizona Department of Transportationís Standard Specifications for Road and Bridge Construction*** Section 107.11, Protection and Restoration of Property and Landscape (2000 Edition). Disposal will be made at either Municipal Landfills approved under Title D of the Resource Conservation and Recovery Act, Construction Debris Landfills approved under Article 3 of the Arizona Revised Statutes (ARS) 49-241 (Aquifer Protection Permit) administered by the Arizona Department of Environmental Quality, or Inert Landfills. (Refer to page 46.)

5. According to ***Arizona Department of Transportationís Standard Specifications for Road and Bridge Construction***, Section 107 Legal Relations and Responsibility to Public (2000 Edition) (Stored Specification 107HAZMT, 01/15/93), if previously unidentified or suspected hazardous materials are encountered during construction, work would cease at that location and the ADOT Engineer would be contacted to arrange for proper assessment, treatment, or disposal of those materials. Such locations would be investigated and proper action implemented prior to the continuation of work in that location. (Refer to page 47.)

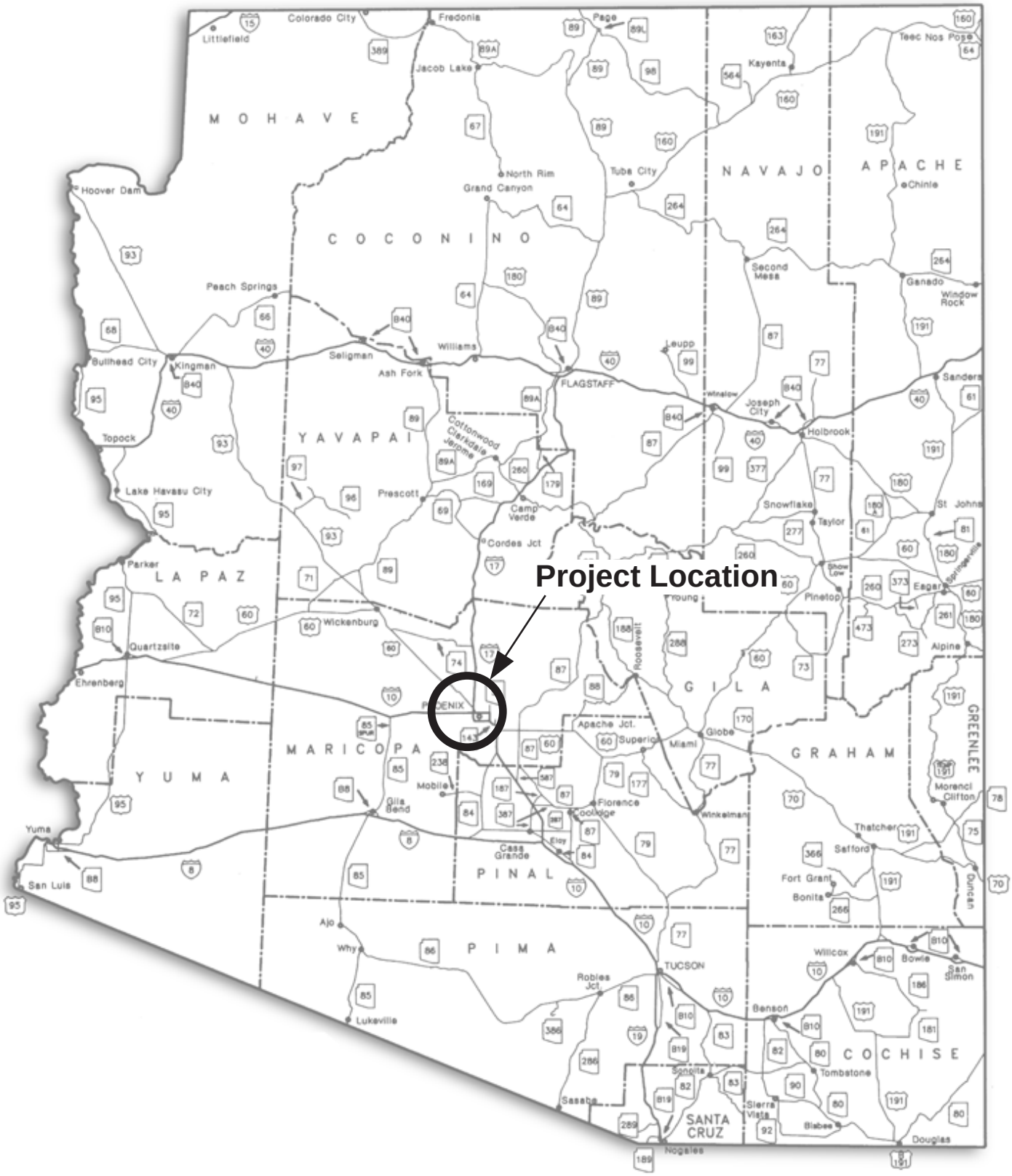


Figure 1. State Location Map

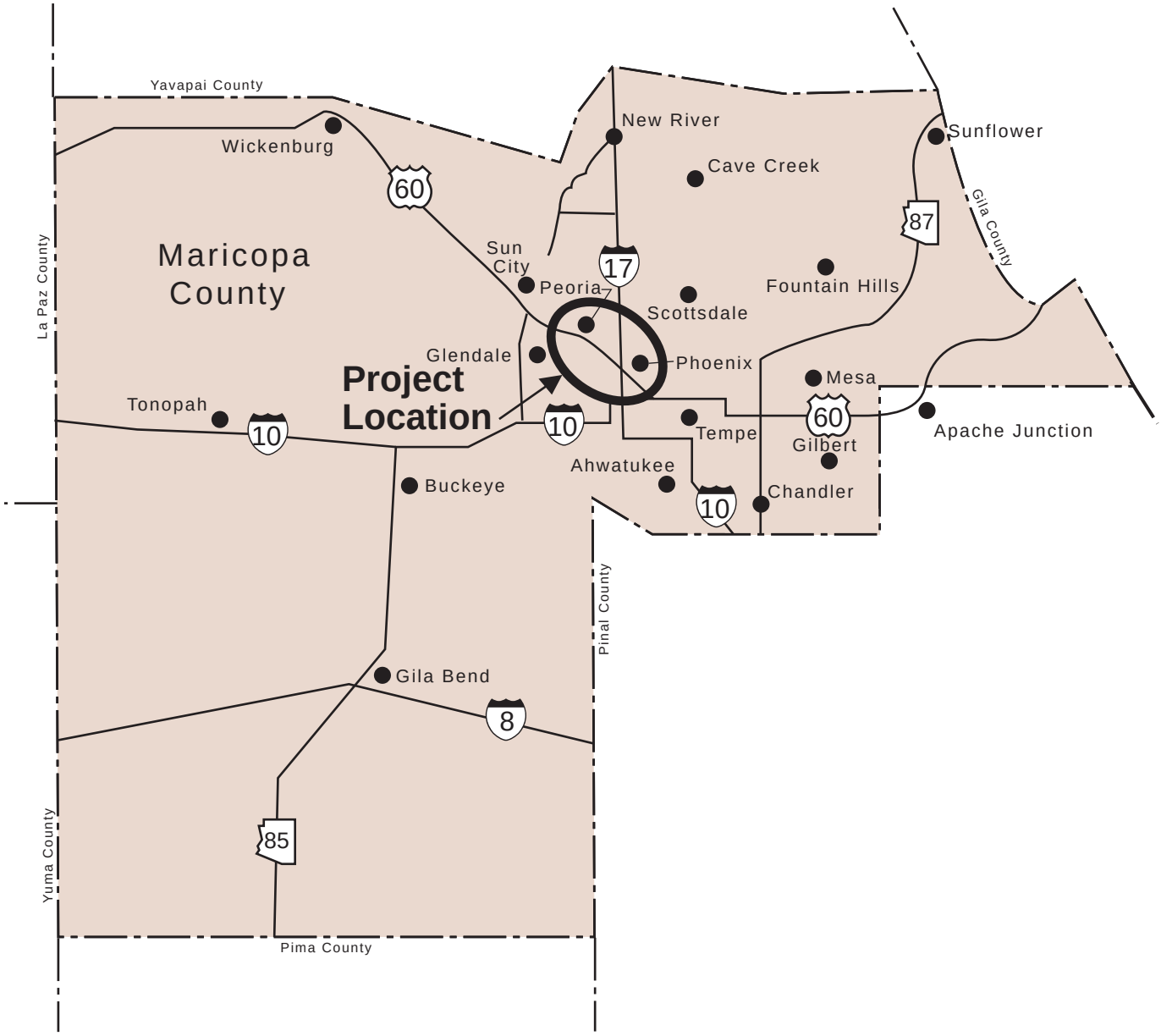


Figure 2. Maricopa County Location Map

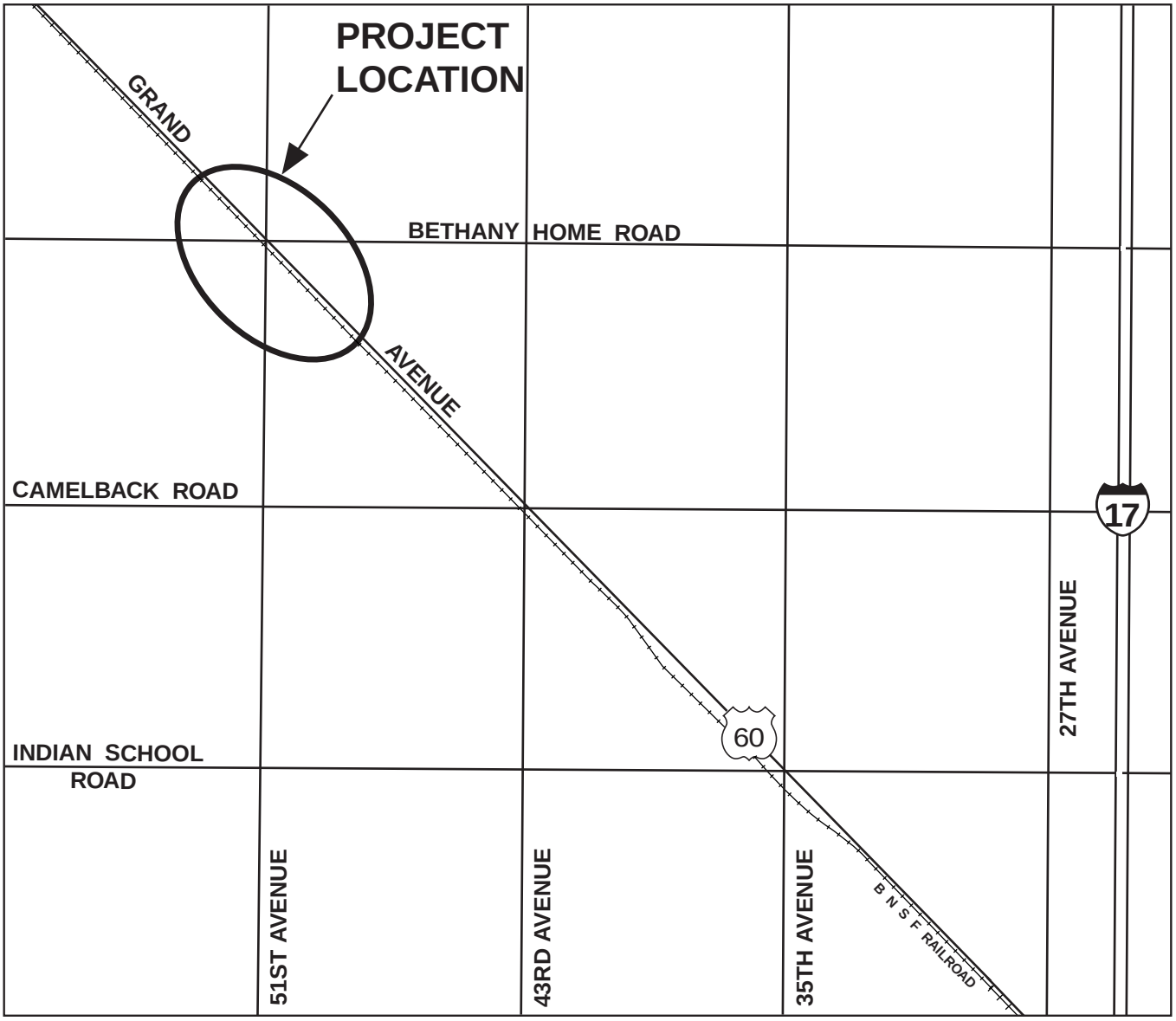


Figure 3. Project Location Map

I. PROJECT PURPOSE AND NEED

A. Project Background and Overview

The Arizona Department of Transportation (ADOT), in conjunction with the Federal Highway Administration (FHWA), has identified the need to improve the traffic operation at the Grand Avenue US 60, Bethany Home Road, and 51st Avenue intersection in the city of Glendale (refer to Figures 1, 2, and 3). ADOT proposes to construct an elevated grade-separation overpass that would realign 51st Avenue to the west of its current location, over Grand Avenue, Bethany Home Road, and the Burlington Northern Santa Fe Railway (BNSF). The project would eliminate the current six-legged intersection, reduce traffic delays, and improve the level of service (LOS) during peak traffic periods at this location.

Scoping and information meetings were held with the public and a stakeholder group, which included representatives from other Federal, State, and local agencies. Based on the issues and concerns stated during these meetings, and the nature of the proposed improvements, FHWA, as the lead Federal agency, has indicated that an Environmental Assessment (EA) appears to be the appropriate level of documentation necessary to analyze the magnitude of impacts based on their context and intensity, as defined in the Council on Environmental Quality (CEQ) Regulations. This EA document describes the probable environmental impacts of the proposed action at the 51st Avenue and Bethany Home Road intersection based on field surveys, and reviews of agency planning documents and technical reports so that the magnitude of the impacts can be determined.

Within the Phoenix Metropolitan Area this portion of US 60 is designated as Grand Avenue. Typically, arterial streets within the metropolitan area intersect from north-south and east-west directions, which results in a standard four-legged intersection. Grand Avenue aligns on a northwest to southeast direction. This northwest to southeast alignment of Grand Avenue creates six-legged intersections as it intersects main north-south and east-west arterial streets (refer to Figure 3). Grand Avenue was originally built to link agricultural lands and their growing communities to downtown Phoenix and the state capitol building. Grand Avenue has undergone a series of studies by state and local agencies over the past two decades to identify and examine a range of alternatives from eliminating Grand Avenue to developing it as an expressway.

In 1985, the Maricopa Association of Governments (MAG) completed the ***West Area Transportation Analyses***. This report analyzed the option to build a freeway along the corridor and/or build grade-separation structure(s), which would remove one of the roads at each six-legged intersection. In 1990, the Interstate10 (I-10) to Interstate17 (I-17) connection was completed. This interstate-to-interstate connection reduced some of the through travel on Grand Avenue, but did not resolve all of the traffic operation problems.

ADOT and MAG followed in 1996 with the ***Grand Avenue Corridor Study,*** which developed expressway concepts that were distinguished by design speeds and traffic service. The Grand Avenue Expressway concept was eliminated by the Governor of Arizona and MAGís Regional Council, in order to bring program costs in line with expected revenues.

In January 1999, ADOT initiated the ***Grand Avenue Major Investment Study*** (MIS). This study evaluated and recommended transportation improvements for the entire Grand Avenue corridor, and identified potential environmental impacts. During the MIS, a steering committee comprised of ADOT, Cities of Glendale, Peoria, and Phoenix, MAG, Maricopa County, Regional Public Transit Authority (RPTA), WESTMARC (a private association for businesses and development in the West Valley), and BNSF, was formed to identify improvement options to the Grand Avenue corridor. In addition, two public meetings and a stakeholders meeting were held to provide opportunities for the public and stakeholders to solicit information and comment. The eight project objectives included the following:

- eliminating six-legged intersections,
- eliminating railroad crossings,
- improving regional mobility,
- promoting development opportunities,
- improving aesthetics of the corridor,
- serving the statewide function of US 60,
- promoting multi-modal uses in the corridor, and
- accommodating the projected travel demand in the corridor.

The MIS focused on improvements at eight locations along Grand Avenue. Two options from the 1996 ***Grand Avenue Corridor Study,*** which also had a public involvement process, were refined and evaluated in the MIS. The two alternatives were Option 4 - Alternating Grade Separations and Option 5 - Limited Expressway.

The Grand Avenue MIS Option 5 at 51st Avenue would offset Grand Avenue to the northeast of its current location as a grade-separation structure, meaning Grand Avenue would be elevated and pass over both 51st Avenue and Bethany Home Road. This option would reduce the traffic congestion and improve the intersectionís current traffic operations, but would not resolve the train-traffic conflicts at the at-grade BNSF track crossing at 51st Avenue. MIS Option 4 at 51st Avenue would realign 51st Avenue to the west of its current location as an elevated grade-separation and reduce the train-vehicle conflicts. Both options would allow the construction to take place while maintaining traffic on adjacent surface streets.

ADOTís objectives for this project are to improve the traffic operation at the intersection of Grand Avenue, 51st Avenue, and Bethany Home Road, while minimizing the social, economic and environmental (SEE)

impacts and right-of-way (ROW) acquisition, reducing construction costs, and limiting traffic restrictions during construction. The proposed improvements would comply with current ADOT and American Association of State Highway and Transportation Officials (AASHTO) design criteria and guidelines. The proposed improvements would also accommodate future traffic volumes predicted for the design year 2020. In addition, the facility should provide a LOS of D or better and reduce intersection delay times. LOS is a qualitative measure referring to the degree of congestion or delay experienced by motorists. LOS range from A to F, with A being the best quality of traffic flow, and F being the poorest (refer to Table 1 and Figure 4).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay per Vehicle (seconds/vehicle)
A	0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

Source: ADOT 2000

B. Project Need

Grand Avenue and the adjacent BNSF railway provide a transportation corridor serving the industrial and commercial businesses in the western Phoenix Metropolitan Area. Grand Avenue also provides through-traffic mobility and local access to commercial, retail, and industrial businesses, and residences along the corridor. The Grand Avenue intersection at 51st Avenue currently operates at a LOS E-F (refer to Table 2). By removing a segment of the six-legged intersection, the LOS would improve. In addition, providing a grade-separation structure at this location would help establish a more efficient north-south route to downtown Glendale from the southwestern portion of the Phoenix Metropolitan Area.

Table 2 illustrates 2000 and forecasted 2020 traffic volumes and LOS classifications if no improvements (No Action Alternative) to the intersection were made. Traffic volumes are represented by a range of average daily traffic (ADT) of vehicles per day (vpd). This range illustrates that volumes may differ on either side of the six-legged intersection because of turning movements onto the other main arterial streets, and the fact that not all vehicles will necessarily travel through the intersection.

Level of Service A. Free flow at posted speed limit, frequent passing opportunities.

Level of Service D. Sluggish flow, no passing opportunities.

Level of Service B. Relatively free flow, limited passing opportunities.

Level of Service E. Very sluggish flow, reduced travel speeds, no opportunity for passing.

Level of Service C. Relatively free flow, but almost no passing opportunities.

Level of Service F. Heavy congestion, frequent stop and go conditions, no passing opportunities.

Figure 4. Level of Service Classifications

Table 2. Existing 2000 and Forecast ì No Action Alternativeî 2020 Traffic Volume and LOS Classifications						
Location	**2000 (existing)**			**2020 (No Action Alternative)**		
	ADT (vpd)[1]	LOS		ADT (vpd)	LOS	
		AM	PM		AM	PM
Grand Avenue	26,500-31,300	E-F	E-F	50,200-56,100	F	F
Bethany Home Road	18,200-22,300	E-F	E-F	34,000-35,000	F	F
51st Avenue	22,200-28,000	E-F	E-F	36,100-36,900	F	F

[1] ADT (vpd) - Average Daily Traffic (vehicles per day) Source: Maricopa Association of Governments, 2000.

BNSF parallels Grand Avenue on the southwest side of the roadway restricting access to main arterial streets. The rail crossing on 51st Avenue is at-grade and controlled by a flashing warning signal. This crossing can add one or more minutes to traffic delays when train traffic occurs. The proposed construction of the 51st Avenue grade-separation structure would improve regional mobility by reducing the traffic volumes, the delay times, and congestion at this intersection.

C. Issues Eliminated from Detailed Study

There are no known riparian areas, wetlands, National Natural Landmarks, threatened and endangered species, sole source aquifers, vegetation and wildlife, or wild and scenic rivers within the project area; therefore, there would be no impacts to these resources. In addition, the proposed construction activities would not involve the discharge of dredged or fill material into waters of the United States; therefore, no Section 404 permit or Section 401 Water Quality Certification would be required. This negative declaration of impacts will not be restated in this document.

II. ALTERNATIVES CONSIDERED

Build alternatives and a No Action Alternative were evaluated based on public and stakeholder input, and the overall feasibility and operation of the design concepts. The Alternative Selection Committee (ASC) included representatives from ADOT Valley Project Management, ADOT Phoenix Construction District, ADOT Right-of-Way Section, ADOT Roadway Section, ADOT Environmental Planning Group, FHWA, and the City of Glendale.

A. Alternative 1 No Action Alternative

The No Action Alternative (Alternative 1) would allow for minor improvements and routine maintenance. This alternative proposes no major improvements for Grand Avenue at the 51st Avenue and Bethany Home Road intersection (refer to Figure 3). The intersection would remain as a six-legged intersection and the No Action Alternative would not decrease delay times or improve traffic movements through the intersection in the design year, when compared with current build recommendations. The No Action Alternative does not meet the operational needs of the project in the year 2020, but is the baseline condition used for comparison against the build alternatives in order to determine the magnitude of impacts.

B. Build Alternatives Considered

Three build alternatives (Alternatives 2-4) were developed for the 51st Avenue overpass. These alternatives were developed based on the design criteria established for the project including the bridge crossing over the BNSF, Bethany Home Road, and Grand Avenue, service roads, and drainage. ADOTís project objectives emphasize minimizing SEE impacts, improving the LOS at the 51st Avenue, Bethany Home Road, and Grand Avenue intersection, eliminating the six-legged intersection, and improving the pedestrian travel. Alternative evaluation would include efforts to minimize ground disturbance and ROW acquisition, reduce construction costs where feasible, limit visual effects and traffic restrictions, and impacts to motorists and pedestrians during construction. For the purposes of this EA, each alternative would be described using ROW, cost, and service road comparisons to Rose Lane Park and the existing 52nd Avenue (refer to Table 3). The evaluation was used to assist ADOT in the selection of a preferred alternative.

Table 3. Description of Alternatives				
	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Right-of-Way (acres)	0	16.9	17.7	17.7
Costs (millions)	Minor Improvements	$13.66	$14.13	$14.06
North Service Road (proximity to Rose Lane Park)	None	Furthest south of Rose Lane Park	Closest to Rose Lane Park	In between location of Alternative 2 and 3
52nd Avenue Extension	None	Offset to the east adjacent to businesses	Aligned with existing 52nd Avenue, but offset from businesses	Aligned with existing 52nd Avenue and adjacent to most of businesses

The three build alternatives considered for this document reflect refinements to the Grand Avenue MIS**,** Option 4 recommended alternative. Option 4 identifies 51st Avenue as being shifted to the west of its current alignment as a grade-separation overpass, and passing over Bethany Home Road, Grand Avenue, and the BNSF. 51st Avenue would be constructed on the same alignment for each build alternative. The alignment of the 51st Avenue overpass would be shifted to the west of its existing alignment to reduce bridge span lengths and to enable 51st Avenue to remain open for traffic during construction. The existing roadway south of Bethany Home Road would be removed, contoured, and landscaped with low-water use plants and decomposed granite. Access for utility service trucks would also be incorporated into the landscape and sidewalk design. The 51st Avenue alignment north of Bethany Home Road would be used for part of the construction of the north service road.

The 51st Avenue overpass would be constructed 68 feet wide, which would match the existing 51st Avenue roadway geometry. Two southbound lanes and three northbound lanes would be provided on 51st Avenue, as well as a two-way left-turn lane. Adequate space would remain to accommodate future bicycle lanes. These bicycle lanes would not be constructed as a part of this project. Sidewalks would be constructed along the north service road and the removed portion of 51st Avenue south of the Grand Avenue and Bethany Home Road intersection. No sidewalks currently exist along 51st Avenue. No sidewalks would be constructed on the overpass structure.

Alternative 2 (eliminated)

Alternative 2 would cost $13.66 million and would require 16.9 acres of ROW from 26 privately owned parcels. It would include a north service road that would connect to 51st Avenue south of Rose Lane Park. The north service road would be located the farthest south when compared to the other build alternatives (refer to Figure 5). The north service road would also be raised to connect to 51st Avenue, which would reduce sight distance for motorists approaching 51st Avenue.

A south service road (52nd Avenue extension) would be constructed between the existing Montebello Avenue and Bethany Home Road, following the existing commercial business property lines (refer to Figure 5). 52nd Avenue would maintain its current alignment south of Montebello Avenue, but would be offset to the east. The 52nd Avenue extension would be 30 feet wide with two travel lanes (one in each direction). Sidewalks would also be constructed along the east side of the 52nd Avenue extension. Right-in and right-out turning movements would be provided at the 52nd Avenue extension and Bethany Home Road intersection. No traffic signal would be constructed at the intersection of 52nd Avenue and Bethany Home Road.

Alternative 2 was eliminated from consideration by the ASC because of the limited sight distance for motorists approaching 51st Avenue from the north service road. In addition, the intersection of the 52nd Avenue extension at Montebello Avenue would not match the existing 52nd Avenue at Montebello Avenue. Therefore, two intersections would be created resulting in an undesirable traffic operation condition.

Alternative 3 (eliminated)

Alternative 3 would cost $14.13 million and would require 17.7 acres of ROW from 28 privately owned parcels. It would require the purchase of two additional parcels at an additional cost of approximately 160,000 dollars when compared to Alternative 2. Alternative 3 would align the north service road closest to Rose Lane Park when compared to Alternatives 2 and 4 (refer to Figure 6). The north service road would intersect 51st Avenue at-grade, and would improve driver sight distance when compared to Alternative 2.

The 52nd Avenue extension would be constructed between the existing Montebello Avenue and Bethany Home Road. The alignment would be slightly offset to the west of the existing commercial property lines. This would enable the existing 52nd Avenue intersection with Montebello Avenue to align with the service road at a four-way intersection at Montebello Avenue. The 52nd Avenue extension would provide two travel lanes, with a left-turn lane for business access located along the west side of the service road. Sidewalks would be constructed along the east side of the 52nd Avenue extension. Right-in and right-out turning movements would be allowed at the intersection of the 52nd Avenue extension and Bethany Home Road similar to other build alternatives.

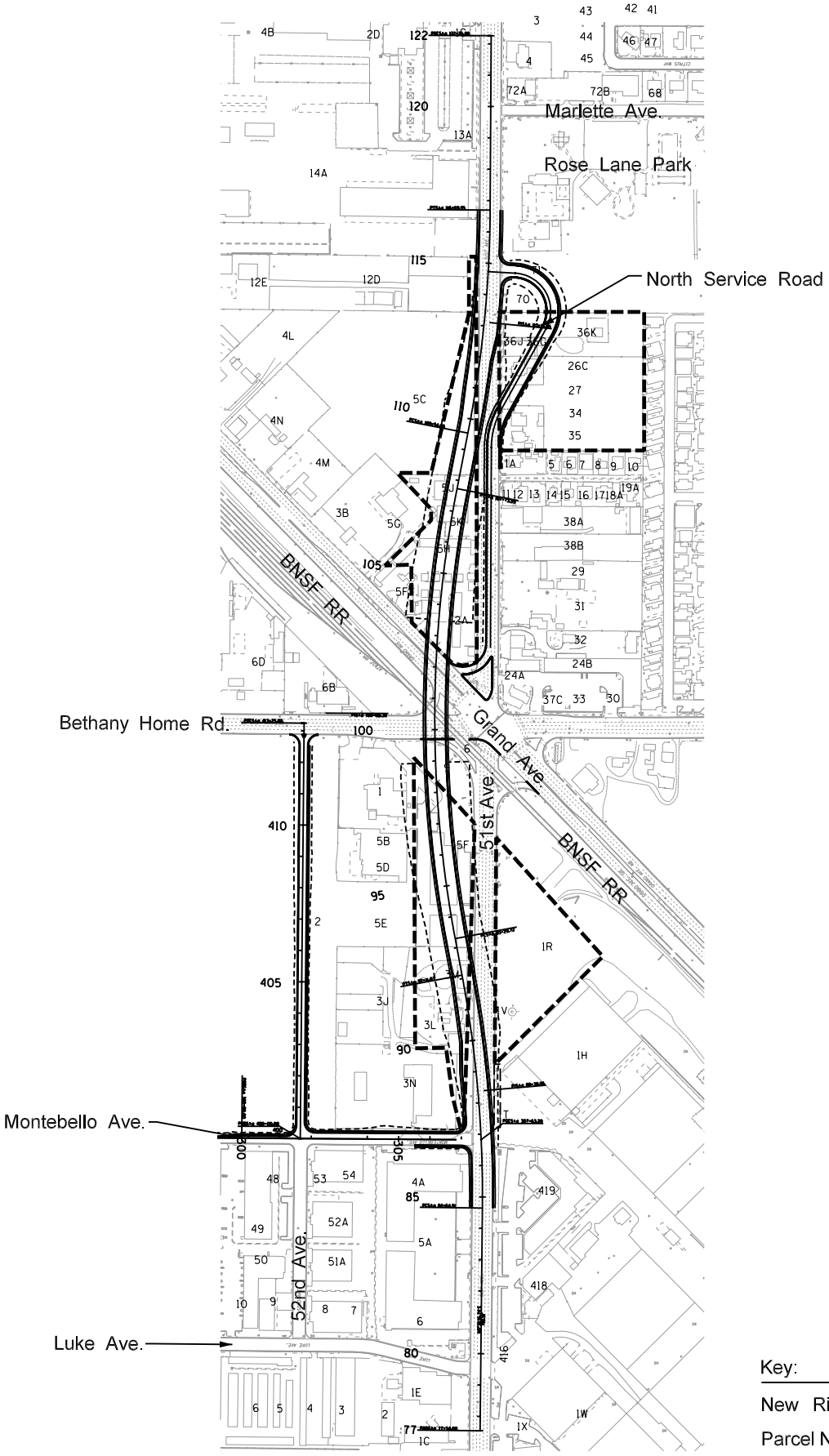


Figure 6. Alternative 3 (Eliminated)

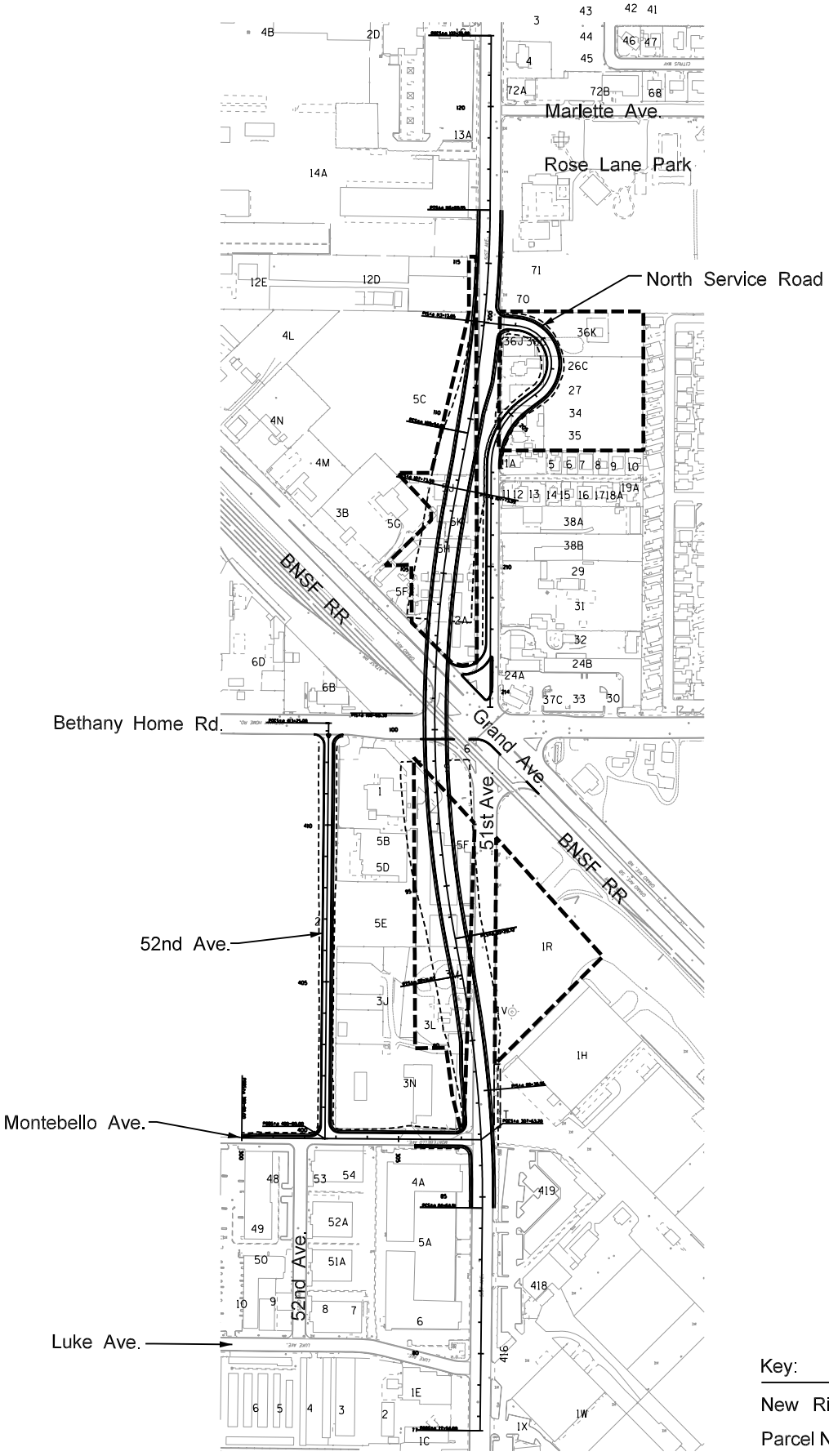


Figure 5. Alternative 2 (Eliminated)

Alternative 3 was eliminated from consideration by the ASC because the location of the north service road next to Rose Lane Park. This would create greater proximity impacts when compared to the other build alternatives.

Alternative 4 (Preferred)

Alternative 4 would cost $14.06 million and would require 17.7 acres of ROW from 27 privately owned parcels and one parcel owned by the City of Glendale. One additional parcel would be acquired as compared to Alternative 2 and one less when compared to Alternative 3. Access to the parcels directly across from the north service road intersection with 51st Avenue would be incorporated into the signalized intersection. Alternative 4 would include a north service road that would intersect with 51st Avenue at an intermediate location between Alternative 2 and Alternative 3 (refer to Figure 7). Alternative 4 would provide an at-grade north service road intersection at 51st Avenue and would provide adequate sight distances similar to Alternative 3, but an improvement over Alternative 2.

The 52nd Avenue extension would be constructed between the existing Montebello Avenue and Bethany Home Road. The 52nd Avenue extension would align with the existing 52nd Avenue intersection located south of Montebello Avenue, similar to Alternative 3, but would be shifted slightly to the east just north of Montebello Avenue to align the service road closer to the six commercial parcels, reducing ROW requirements. The 52nd Avenue extension would provide two travel lanes and a left-turn lane (3-lane section) for business access along the west side of the service road similar to the other build alternatives. Sidewalks would also be constructed along the east side of the 52nd Avenue extension. A right-in and right-out turning movement would be required from and to Bethany Home Road from the 52nd Avenue extension. There would be no traffic signal located at the 52nd Avenue and Bethany Home Road intersection.

Alternative 4 was identified as the preferred alternative by the ASC because it would minimize potential proximity impacts to Rose Lane Park and would require less property acquisition when compared to Alternative 3. The intersection of the proposed 52nd Avenue extension with the existing 52nd Avenue and Montebello Avenue would be aligned as a standard four-way intersection similar to Alternative 3, and an improvement when compared to Alternative 2.

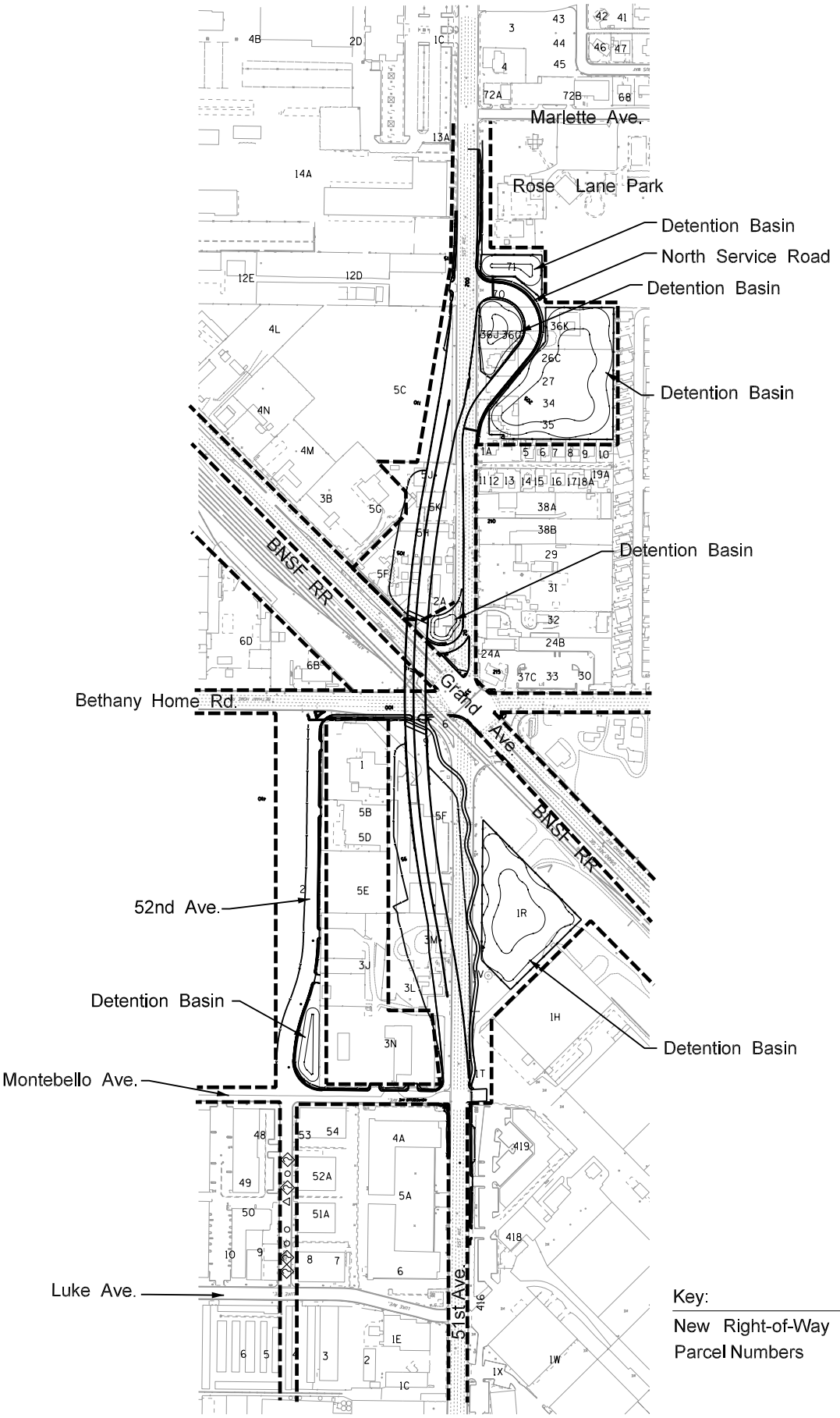


Figure 7. Alternative 4 (Preferred)

III. DESIGN FEATURES OF THE PREFERRED ROADWAY IMPROVEMENTS

The following information describes the roadway features of the preferred alternative for 51st Avenue grade-separation structure, including the roadwayís horizontal and vertical alignment, access control, right-of-way requirements, drainage and floodplain considerations, traffic control, utilities, and other features.

A. Horizontal and Vertical Alignment

The proposed improvements would realign 51st Avenue to the west of its existing alignment, passing over Grand Avenue and Bethany Home Road. The grade-separation overpass would have a design speed of 45 miles per hour (mph). The overpass would have two southbound lanes and three northbound lanes. Interior travel lanes would be constructed 11-feet wide, while outside lane widths would be 14-feet with 2-foot shoulders along the grade-separation structure. The grade-separation structure would have a minimum vertical clearance of 16 feet, 6 inches except where the structure crosses the BNSF. At the BNSF crossing the grade-separation structure would have a minimum height of 23 feet, 6 inches. The north service road would have two travel lanes (one in each direction), and the 52nd Avenue extension would be designed as a 3-lane section (two travel lanes and a center left-turn lane). These service roads would have a design speed of 40 mph, with 12-foot travel lanes (refer to Appendix A).

B. Access Control

Vehicular access would be restricted along the 51st Avenue overpass structure. Traffic signals would be located at the 51st Avenue intersections with the north service road and Montebello Avenue. The existing traffic signal located at the Grand Avenue and Bethany Home Road intersection would be removed and replaced. Motorists accessing southbound 51st Avenue from eastbound Bethany Home Road could utilize the 52nd Avenue extension. Other 51st Avenue southbound access would be required to use the north service road, because of the left-turn restriction for westbound Bethany Home at 52nd Avenue. Motorists seeking northbound access to 51st Avenue from Bethany Home Road and Grand Avenue could utilize the same turning movements as required for southbound motorists.

Access to the residential area just east of the north service road alignment, and north of the Grand Avenue and Bethany Home Road intersection would remain, but would require using the north service road**.** Access to commercial businesses located north of Bethany Home Road and directly adjacent to 51st Avenue on the west side, would be provided at the signalized intersection with the north service road. Access would

also be provided to the six parcels located between 51st Avenue and the 52nd Avenue extension from 52nd Avenue. All other access to parcels or property within the project area would not be altered.

C. Right-of-Way

Approximately 14 acres of new right-of-way would be required for construction of the preferred alternative. There would be 25 property owners and 27 County Assessorís parcels affected. Of these 27 parcels, there would be 17 partial-take parcels, while the remaining 10 parcels would involve a full-take of property. In addition, two temporary construction easements (TCE) would be required during construction.

D. Drainage, Floodplain Considerations, and Structures

Drainage facilities would be designed in accordance with City of Glendale Design Guidelines. Drainage impacts would be mitigated by the construction of six detention basins within the project area. An intergovernmental agreement (IGA) would be developed between ADOT and the City of Glendale to specify maintenance responsibilities. The drainage design would address offsite flows for both the 50-year and 100-year, 24-hour storm events, and would not increase flows or cause ponding to occur on the adjacent property. Pavement drainage would follow the City of Glendale Roadway Design Guidelines (10-year flood event). Curb openings and catch basins would be used along 51st Avenue to drain water within the street to detention basins.

A total of six detention basins would be required for this project (refer to Figure 7). They are located as follows:

- Two detention basins would be located adjacent to the 51st Avenue and Rose Lane Park.
- A third detention basin would be constructed between the north service road and 51st Avenue just south of their intersection.
- A fourth detention basin would be located in the area south of Bethany Home Road and east of 51st Avenue near the Horton Water Tower.
- The fifth detention basin would be located along the 52nd Avenue extension near its connection to Montebello Avenue to capture the 52nd Avenue pavement drainage.
- The sixth detention basin would be constructed between the realigned 51st Avenue overpass and the north service road immediately north of Grand Avenue.

When the basins reach their storage capacity during storm events, they would be permitted to continue to flow in the same drainage pattern that currently exists, although this would only happen under major rainfall events.

The detention basins would be maintained by the City of Glendale and would meet their design criteria. Catch basins and underground storm drains would be utilized to maintain and direct flows to the detention basins. These basins would drain by percolation and/or dry wells. The preferred alternativeís storm water detention system would, at a minimum, replace the current systemís storage capacity.

E. Traffic Control

Traffic control would be in accordance with Part VI of the ***Manual on Uniform Traffic Control Devices for Streets and Highways***, published by the US Department of Transportation, FHWA (1993), and the ADOTís Traffic Control Supplement (1996). Traffic restrictions would be minimal during construction because the proposed improvements would include on offset grade-separation bypass of Grand Avenue and the affected private property would be acquired prior to any ground disturbing activities.

Maintenance of traffic and access would be addressed in the traffic control plan. Key aspects to be evaluated would include: 1) maintenance of traffic on 51st Avenue, Bethany Home Road, and Grand Avenue, and access to the adjoining commercial and retail businesses; 2) minimizing impacts to the BNSF railroad mainline during construction of the overpass structure; and 3) maintenance of traffic flow during bridge construction and utility relocations. ADOT would coordinate with the BNSF during the development of the traffic control plan.

Traffic and access during construction would be maintained on 51st Avenue, Bethany Home Road, and Grand Avenue, except during setting of bridge girders and final tie-ins. At least two lanes in each direction would be provided. There would be intermittent temporary lane restrictions on Bethany Home Road and Grand Avenue during construction of the grade-separation structure. A full closure of Grand Avenue and Bethany Home Road for approximately eight hours would be required during setting of the girders. Temporary curb lane closures on 51st Avenue could be required for some phases of construction. No major closures would be permitted between Thanksgiving and January 1st. Detours would be coordinated with adjacent projects to minimize potential conflicts.

During any full closures of Grand Avenue and Bethany Home Road a detour would be established. This detour would be temporary, and only used for nighttime or weekend closures. Nighttime closures would occur between the hours of 8:00 p.m. and 5:00 a.m. The contractor would notify the public at least 14 days prior to any full closures.

F. Utilities

Utilities known to occur within the proposed construction area include Arizona Public Service (APS) power, Salt River Project (SRP) power, SRP irrigation, BNSF, City of Glendale water and sewer, Cox Communications, Southwest Gas, Qwest, MCI Worldcom fiber optic line, and the BNSF fiber optic line.

The APS 230 kV line that is located within the BNSF ROW would remain in the same location as it currently exists, although it will be raised to approximately 75 feet. Pole locations would be adjusted to avoid conflicts with the 51st Avenue bridge. The SRP powerlines located south of Bethany Home Road would require relocation. A SRP irrigation line located along 51st Avenue would likely need to be relocated, but SRP would submit relocation designs prior to the completion of the final design phase. SRP relocations would be performed concurrent to final phases of final design. City of Glendale water and sewer lines would require relocation. MCI World Com fiber optic lines would also require relocation. This fiber optic line is located within the BNSF right-of-way, and coordination with the railroad would be completed prior to final design by ADOTís Utility and Railroad Engineering Section.

The contractor would provide notice to utility customers 14 days prior to any disruption of service, if applicable. Access issues would be addressed during final design. In addition, the contractor would coordinate with BNSF to obtain the necessary permits for construction activities within their right of way.

G. Other Features

Two new traffic signals would be installed on 51st Avenue. These signals are located at the intersection of the north service road and Montebello Avenue. An IGA would be needed between the City of Glendale and ADOT for the operation and maintenance of these traffic signals, in addition to the detention basins. Street lighting would be provided along the sidewalks southwest of the Bethany Home Road and Grand Avenue intersection for safety and security reasons, and along both sides of the new 51st Avenue overpass. An IGA would also be established between ADOT and the City of Glendale for the maintenance of these lights.

All embankments and detention basins would be covered with an inert ground cover and low-water use plants. Trees would be planted to help screen the detention basins from the view of motorists and residents within the adjacent residential areas.

IV. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The following information describes the affected environment or existing conditions within the project area, and presents the potential effects of the proposed project. Measures to avoid or minimize impacts have also been identified for each component of the environment and are summarized in the mitigation measures on page v of this document. The agency and public involvement activities undertaken as part of the environmental process are presented in Chapter VI. For this document, the north-south and east-west limits of the project area are approximately one-half mile on either side of the centerline of the existing Grand Avenue, 51st Avenue, and Bethany Home Road intersection. Visual or scenic resources identified extend beyond these limits. The figures in the document depict a graphic representation of the width of the project area for illustrative purposes only.

The potential environmental impacts of the proposed improvements were evaluated based on both the context of the effects on the project area and the intensity or severity of impacts as defined in CEQís Regulations. Table 4 summarizes the potential environmental impacts of the proposed project actions.

Table 4. Results of Environmental Analysis

Environmental Consideration	Result of Alternative Evaluation
Ownership, Jurisdiction, and Land Use	No substantial impact
Social and Economic Considerations	No substantial impact
Title VI/Environmental Justice	No substantial impact
Cultural Resources	No substantial impact
Section 4(f) Resources	No substantial impact
Air Quality	No substantial impact
Noise Quality	No substantial impact
Landscape/Vegetation Removal/Invasive Species	No impact
Visual Resources	No substantial impact
Drainage and Floodplain Considerations	No substantial impact
Water Resources	No impact
Materials Sources	No impact
Construction Debris Disposal	No impact
Hazardous Materials	No impact

A. Ownership, Jurisdiction, and Land Use

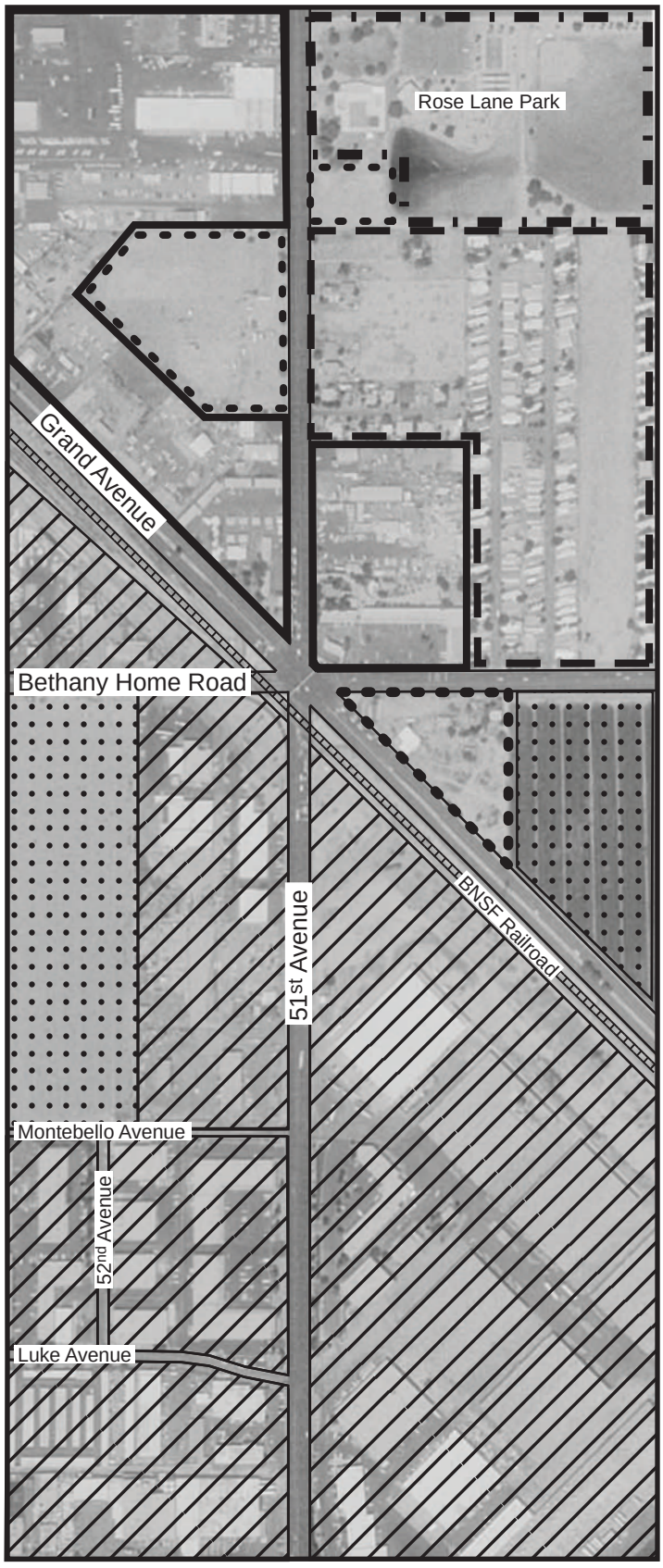
For the purposes of this EA, land ownership is identified in terms of public or private ownership. Jurisdiction implies the authority to regulate land uses. Land in the project area is under the jurisdiction of the City of Glendale. Existing land uses within the corridor include residential, industrial, recreational open space, transportation (BNSF), vacant, retail, and agriculture (refer to Figure 8).

Residential land uses are concentrated primarily east of 51st Avenue and north of Bethany Home Road. There are numerous industrial and retail land uses within the project area located both north and south of the Grand Avenue and Bethany Home intersection. According to the City of Glendaleís ***General Land Use Plan***, the future land uses that have been established within the project area are similar to those illustrated in Figure 8. The exception to this is the existing agricultural parcel that has been designated as industrial for future development (ADOT Grand Avenue MIS 1999).

There would be short-term impacts to existing land uses as a result of the project construction and during the relocation of utilities. Permanent impacts include the acquisition of approximately 17 acres of ROW. ROW would be acquired from private parcels and one parcel owned by the City of Glendale, totaling 27 parcels. Of these 27 parcels, 10 parcels would be full-take acquisitions, while 17 would be partial-takes. Twenty-five property owners would be affected. Property owners would be compensated at fair market value for property acquired for project ROW in accordance with the ***Uniform Relocation Assistance and Real Property Acquisition Policies Act***, as amended in 1987.

No residences would be acquired for ROW as a result of the proposed improvements. With the realignment of 51st Avenue to the west of its existing alignment and the construction of the proposed 52nd Avenue extension, some new parcels would benefit from fronting these streets either providing new access to their business or increased visibility for their business. In addition, any unused property that would be acquired for ROW that would not be used for the operation/maintenance of these facilities or would be landscaped could be available as future business sites.

Access to residences and businesses would be maintained during construction. The contractor would notify adjacent property owners, residents, or businesses at least 14 days prior to construction. There are no public service facilities located within the project area that would be affected. Because the project would be aligned west of the existing section of 51st Avenue, only temporary traffic delays would occur for vehicles requiring access from adjacent arterial streets, to businesses or individual residences. Grand Avenue, 51st Avenue, and Bethany Home Road would be closed for a short period during installation of bridge crossings. During the full closure of Grand Avenue and Bethany Home Road, a detour route would be used. The detour would be temporary, and only used for nighttime or weekend closures. Nighttime closures would be between the hours of 8:00 p.m. and 5:00 a.m. A detour would also occur during the final tie-in of the



Key

- Retail/Commercial
- Recreational Open Space
- Residential
- Vacant
- Industrial
- Agricultural

NORTH

Figure 8. Existing Land Use

new 51st Avenue structure with the existing 51st Avenue. The detour would require out-of-direction travel for motorists resulting in increased travel times. Access to local residences and businesses would not be restricted, but the detour could delay the ability of motorists to enter and exit these areas. The volume of traffic expected to use these detours is unknown at this time. The access control and traffic control plans would be prepared following standard ADOT guidelines and any applicable City standards (refer to Section III).

Because of the construction of 51st Avenue as a grade-separation roadway at this location, access to existing and future planned businesses near the Grand Avenue and Bethany Home Road intersection would be more difficult. Motorists could still access these businesses on service roads that would be included in these proposed improvements, but motorists would be required to travel longer distances and experience longer travel times. The reduction in traffic volume as a direct result of removing 51st Avenue from the six-legged configuration would minimize project-area-wide impacts to motorists. Access to established businesses that would not be purchased for ROW could be improved because of the reduction in traffic volume. Pedestrian access to these businesses would also be improved because of the addition of sidewalks, which currently do not exist along all segments of the project area. In addition, the proposed improvements would reduce the delay times at the Grand Avenue and Bethany Home Road intersection for both motorists and pedestrians.

Project-area-specific commercial, retail, and residential marketability and land use could improve due to the realignment of 51st Avenue and the construction of newly designed traffic facilities. Access points to the adjacent properties and to the known future expansion of the existing properties would be provided. By reducing traffic volumes and delay times for motorists and the proposed location of the Preferred Alternativeís service roads, ingress and egress for motorists seeking access to these sites would be improved. This change could improve the economic vitality of the local businesses and future land uses at this location. It is not anticipated that the proposed improvements would create a substantial impact to the ownership, jurisdiction, or existing or future land uses in the project area.

B. Social and Economic Considerations

Grand Avenue is a multi-modal transportation corridor. Although private automobile travel is the primary transportation use, bus routes, and pedestrian and bicycle travel also occur. The RPTA bus line provides routes along Grand Avenue and Bethany Home Road. The RPTA Yellow Line (Grand Avenue route), operates every 30 minutes and provides ridership between downtown Peoria and the State Capitol. Route 60 runs along Bethany Home Road, providing a daily estimated ridership of 930 passengers between the hours of 5:00 a.m. and 7:30 p.m., according to the Grand Avenue MIS. Bus stops are located along Bethany Home Road and Grand Avenue, near the current six-legged intersection. There are no routes currently

operating on 51st Avenue. RPTA is planning to provide bus service on 51st Avenue and in the future could utilize the proposed service roads to transfer passengers to and from the Yellow Line and Route 60.

Pedestrian sidewalks do not currently exist along 51st Avenue. New sidewalks would be constructed along the east side of the proposed north service road and the 52nd Avenue extension. The current pedestrian environment at the intersection of Grand Avenue, 51st Avenue, and Bethany Home Road is poor, because of heavy traffic, intersection design, and short duration crossing signals relative to the actual distance or time needed to cross the intersection. This could cause a pedestrian to continue to cross, even after ìno crossingî signals have become activated. Similar conflicts could also affect bus commuters, seeking access to bus stops in the area. Affected bus stops near the current Grand Avenue, 51st Avenue, and Bethany Home Road would be relocated to accommodate the continued transit use. ADOT and RPTA would coordinate the relocation of these bus stops, if necessary. Sidewalks would be provided along the north service road, and along the portion of 51st Avenue that would be removed and landscaped, south of the Bethany Home Road and Grand Avenue intersection. These sidewalks would be provided to accommodate pedestrian travel between Rose Lane Park and the bus stop locations. Ultimately, eliminating the six-legged intersection would improve pedestrian access across this intersection, and improve the multi-modal uses of the corridor.

Short-term economic impacts could occur as a result of the added congestion typical during roadway construction projects. Access to residences and business would be maintained during all phases of construction. People living or working in the immediate vicinity of the roadway would be exposed to temporary increased levels of noise and dust due to the construction activities. The proposed project could provide short-term employment opportunities for local residents, as part of the construction workforce. During construction, some workers may purchase food and other commodities, and generate revenues for the nearby businesses.

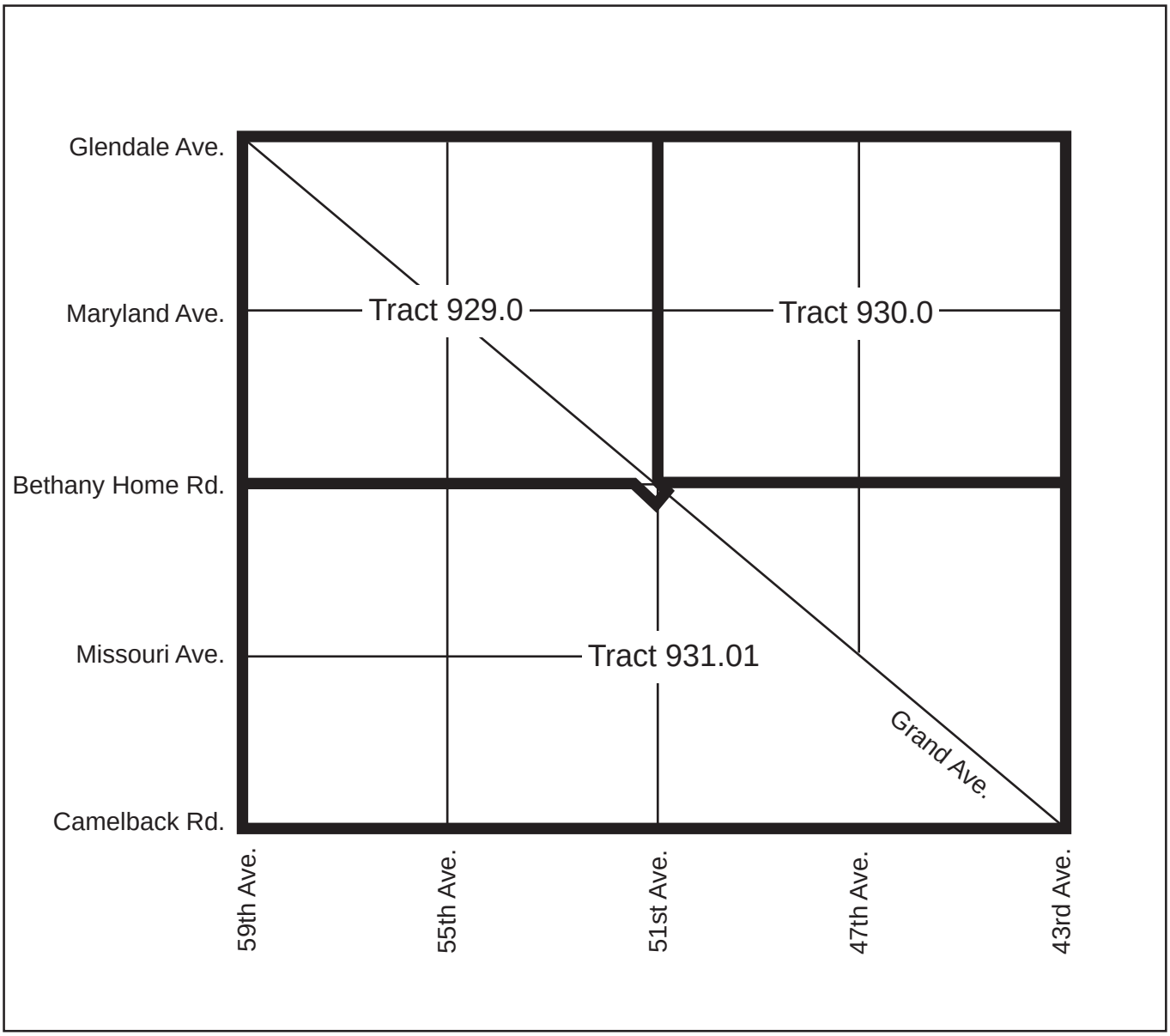
In summary, the proposed improvements would not alter any existing RPTA bus routes and transfer points because there are currently no routes along 51st Avenue. Bus Service along Grand Avenue would not be disturbed. Access for pedestrians seeking bus stops for the RPTA Grand Avenue Yellow Line and Bethany Home Roadís Route 60, would be provided with new sidewalks within the disturbed portion of the project area, and bus stops after completion of the project. Temporary bus stops would be constructed in consultation with RPTA for use during construction activities. Overall, the proposed project would improve the operation and functionality of this segment of the Grand Avenue corridor. Delay times and congestion would decrease. Pedestrian facilities would be constructed and landscaped along feasible disturbed portions of the project area. No substantial access changes to residences and/or businesses would be anticipated, although some out-of-direction travel could occur. Therefore, it is not anticipated that the proposed improvements would have a substantial impact on the social and/or economic environment at 51st Avenue, Bethany Home Road, and Grand Avenue.

C. Title VI of the Civil Rights Act of 1964 and the Executive Order Relating to Environmental Justice

Under Title VI of the Civil Rights Act of 1964 and related statutes, Federal agencies are required to ensure that no person is excluded from participation in, denied benefits of, or subjected to discrimination under any program or activity receiving Federal financial assistance on the grounds of race, color, religion, national origin, sex, age or disability. Executive Order 12898***, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations***, signed by President Clinton on February 11, 1994, requires Federal agencies to identify and address as appropriate, disproportionately high and adverse effects on minority and low-income populations as well as disabled individuals, women as head of household, and elderly populations. A minority population means people who are African American, Hispanic, Asian American, Native American or Alaskan Natives. Low income is defined as a person 18 years old or older who is below the poverty level estimated from the 1990 Census. Disabled individuals are persons aged greater than 16 who are either work disabled, have self-care limitations, or a mobility disability. Elderly refers to individuals who are older than 60 years of age.

To be consistent with the requirements of Title VI and Environmental Justice, the demographic characteristics of the population of the project area were examined to determine if minority and low income populations would be disproportionately affected by the proposed project. Minority racial populations as defined by the U.S. Census include the following racial categories: African American, American Indian/Eskimo and Aleut (Native American), Asian and Pacific Islander, and ìother raceî. In addition, the category ìHispaniciî was used for all Hispanics (regardless of race), even for those Hispanics who identified themselves as ìwhiteî.

The MAG 1995 Special Census of Maricopa County and the U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing were used to compare and contrast the demographic and economic characteristics of the project area with those of the City of Glendale and Maricopa County. Census tracts are small, relatively permanent statistical subdivisions of a county, and do not cross county boundaries (refer to Figure 9). Block groups, as used in this document, are even smaller statistical subunits of census tracts (refer to Figure 10). For this document, block groups are used as the smallest level of census resolution representing 1990 census data. Enumeration districts (ED) are similar to block groups but reflect information from the 1995 Special Census of Maricopa County (refer to Figure 11). Both 1990 and 1995 census data are reported in the following tables in order to represent the use of the most recent statistical numbers for the smallest geographic area. The statistics reported may extend outside the project area; therefore, the exact population and demographic characteristics of the project area may vary from these data. In addition, shaded numbers in the following tables illustrates those represented census units with percentages greater than the respective city and county.



Key

Census Tract Boundary

Mile

0.0 0.5 1.0

NORTH

Figure 9. Census Tracts

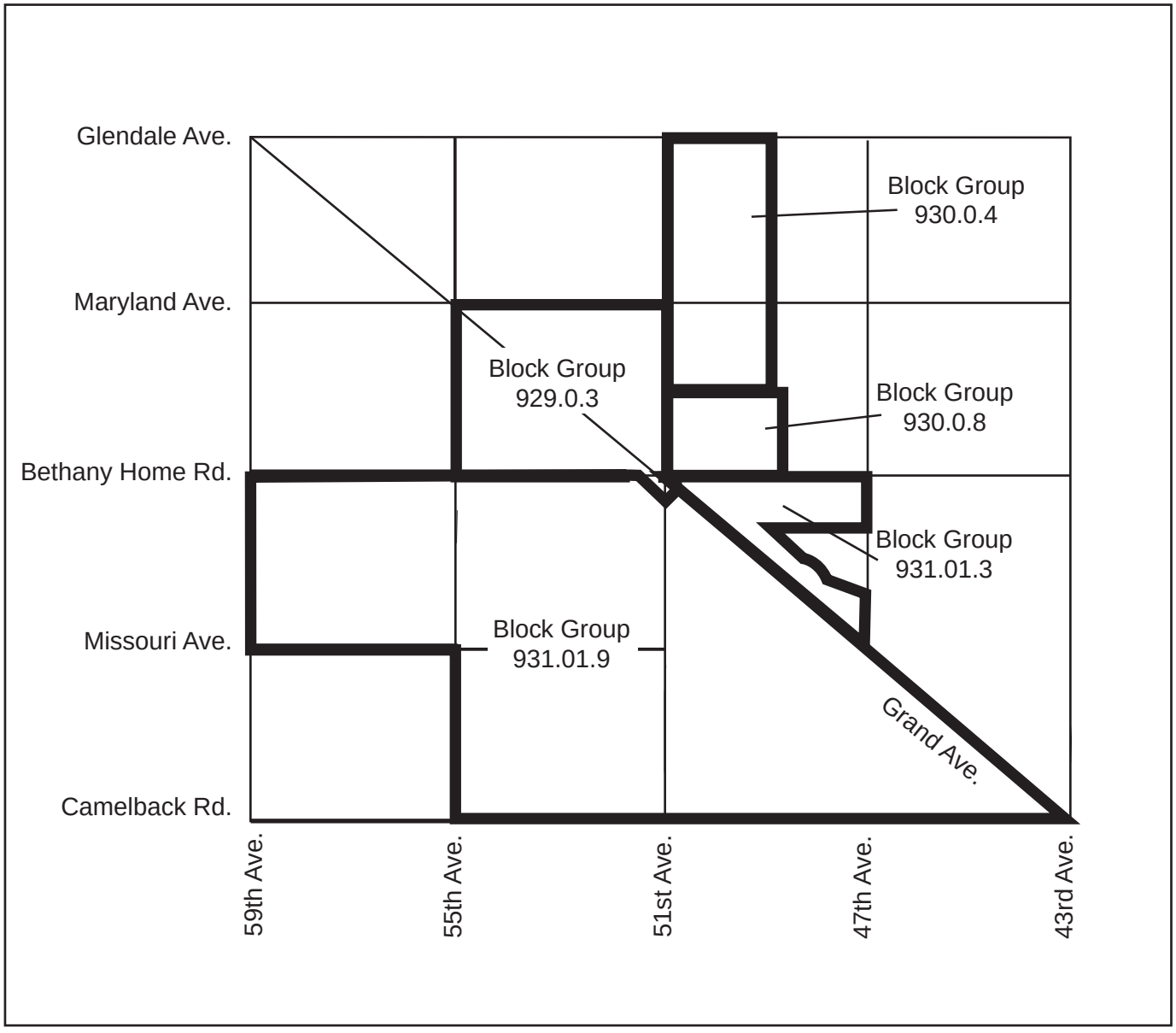
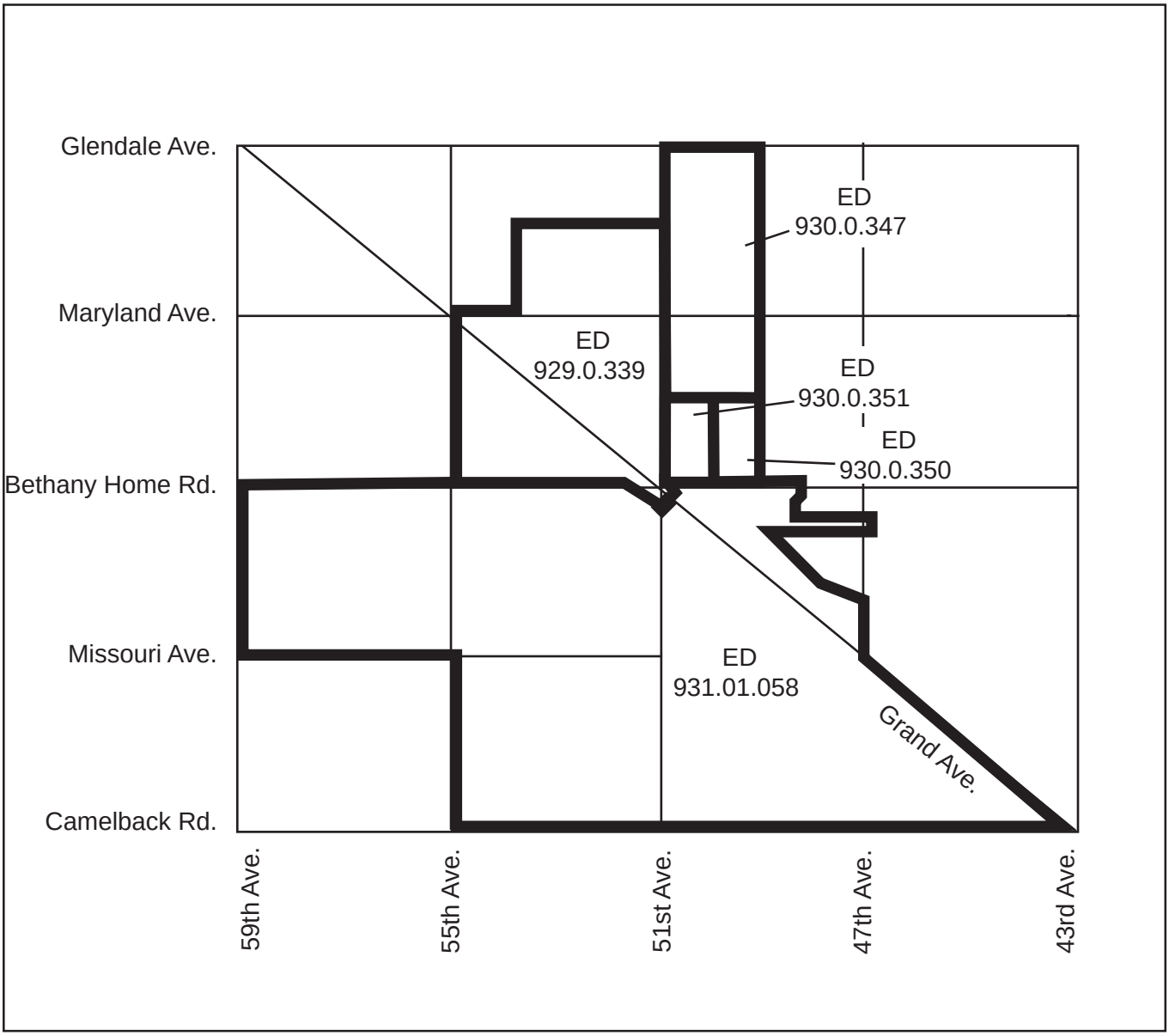


Figure 10. Census Block Groups



Key

Census Enumeration District (ED) Boundary

Mile

0.0 0.5 1.0

Figure 11. Census Enumeration Districts

1. Race

According to the 1995 Special Census of Maricopa County, the project area is largely Hispanic represented with an ED average of 54.1% (refer to Table 5). Specificially, ED 929.0.339 is primarily represented by Hispanics (81.4%). The City of Glendale and Maricopa County populations of Hispanics, 19.8% and 20.5% respectively, were substantially lower. In addition, the African American population as identified in ED 931.01.058 is 16.0%, which is approximately three times larger when compared to the City of Glendale and Maricopa County.

Table 5. 1995 Population and Racial Demographics

Area	Total Population	White		African American		Native American		Asian		Other		Hispanic	
		#	%	#	%	#	%	#	%	#	%	#	%
ED 929.0.339	789	356	45.1	46	5.9	30	3.8	9	1.1	348	44.1	642	81.4
ED 930.0.347	1149	494	43.0	17	1.5	27	2.3	14	1.2	597	52.0	665	57.9
ED 930.0.350	235	186	79.1	1	0.4	13	5.5	2	0.9	33	14.0	28	11.9
ED 930.0.351	131	85	64.9	0	0.0	0	0.0	0	0.0	46	35.1	42	32.1
ED 931.01.058	413	229	55.4	66	16.0	9	2.2	19	4.6	90	21.8	94	22.8
All EDs	2717	1350	49.7	130	4.8	79	2.9	44	1.6	1114	41.0	1471	54.1
City of Glendale	182,615	144,626	79.2	8129	4.5	2688	1.5	4353	2.4	22,819	12.5	36,093	19.8
Maricopa County	2,551,765	2,019,5	79.1	93,358	3.7	45,843	1.8	51,231	2.0	341,777	13.4	522,487	20.5

Source: Maricopa Association of Governments. ***1995 Special Census for Maricopa County: Summary Tables, September 1997.***

2. Age 60 Years and Over

The 1995 Special Census of Maricopa County indicates that the percentage of people over 60 years of age within the project vicinity EDs varies between 3.6% and 23.8% (refer to Table 6). The average percentage of elderly people living within the represented EDs is 15.2%, which is slightly lower than Maricopa County and slightly higher than the City of Glendale.

Table 6. 1995 Percentage of Population Greater Than or Equal to 60 Years of Age			
Area	Total Population	> 60 Years of Age	
		#	%
ED 929.0.339	789	110	13.9
ED 930.0.347	1149	213	18.5
ED 930.0.350	235	56	23.8
ED 930.0.351	131	19	14.5
ED 931.01.058	413	15	3.6
All EDs	2717	413	15.2
City of Glendale	182,615	20,193	11.1
Maricopa County	2,551,765	411,213	16.1

Source: Maricopa Association of Governments. ***1995 Special Census for Maricopa County: Summary***

3. Low-Income Population

The 1995 Special Census of Maricopa County indicates that the percentage of households living below the poverty level within the represented Census Tracts were double those averages representative of the City of Glendale and Maricopa County (Table 7). Tract 929.0 indicates that 43.5% of households within that census unit live below poverty, while the other two census units are approximately 20%.

Table 7. Percentage of Households Living Below Poverty			
Area	Households With Income Reported	Below Poverty	
		#	%
Tract 929.0	586	255	43.5
Tract 930.0	2051	426	20.8
Tract 931.01	1684	322	19.1
All Tracts	4321	1003	23.2
City of Glendale	42,583	4857	11.4
Maricopa County	608,777	63,392	10.4

Source: Maricopa Association of Governments. ***1995 Special Census for Maricopa County: Summary***

4. Mobility Disability

The 1990 Arizona Department of Economic Security census data indicates the percentage of people living in the City of Glendale who claimed a mobility disability was 12.8% (refer to Table 8). Block Group 929.0.3 indicates that all of those individuals residing in this block group have a mobility disability. This number has been adjusted by standard census bureau calculations. Because of block group boundaries, this population may extend outside of the project area. Except for Block Group 931.01.9 represented at 46.2%, other

project area/vicinity block groups were essentially the same as those populations of the City of Glendale and Maricopa County.

Table 8. 1990 Percentage of Population with Mobility Disability

Area	Population > 16 Years of Age	Mobility Disability	
		#	%
Block Group 929.0.3	26	26	100.0
Block Group 930.0.4	939	114	12.1
Block Group 930.0.8	483	67	13.9
Block Group 931.01.3	602	97	16.1
Block Group 931.01.9	13	6	46.2
All Block Groups	2063	310	15.0
City of Glendale	108,107	13,790	12.8
Maricopa County	1,595,853	207,610	13.0

Source: U.S. Department of Commerce, Bureau of the Census. ***1990 Census of Population and Housing,***

5. Female Head of Household

The 1990 Special Census of Maricopa County indicates that the percentage of female heads of households living within the represented Block Groups average 13.5% (refer to Table 9). This average is slightly higher when compared to the City of Glendale (12.0%) and Maricopa County (9.9%).

Table 9. 1990 Percentage of Female Head of Household

Area	Total Households	Female Head of Household	
		#	%
Block Group 929.0.3	16	0	0.0
Block Group 930.0.4	363	54	14.9
Block Group 930.0.8	290	18	6.2
Block Group 931.01.3	300	60	20.0
Block Group 931.01.9	6	0	0.0
All Block Groups	975	132	13.5
City of Glendale	53,871	6463	12.0
Maricopa County	808,162	79,646	9.9

Source: U.S. Department of Commerce, Bureau of the Census. ***1990 Census of***

According to FHWA Interim Region 9 Guidance (May 1997), if the population is dispersed and not an identifiable minority or low-income community, then it is not considered a ìdistinctî group; therefore, there would not be any adverse effect on minority or low-income populations as a result of the proposed activities. In addition, property owners would be compensated at fair market value for property acquired for project

ROW in accordance with the ***Uniform Relocation Assistance and Real Property Acquisition Policies Act***, as amended in 1987. The proposed project has been developed in accordance with the Civil Rights Act of 1964 (Title VI), as amended by the Civil Rights Act of 1968 (Title VIII), and conforms to the requirements of the Americans with Disabilities Act of 1990. Public comments on the proposed alternatives were solicited as part of the EA process. In general, the public supported construction of a grade-separation overpass. Refer to Section VI for additional information regarding public involvement and comments.

The census data indicates that distinct Title VI populations with representative population groups above 50 percent do occur within and adjacent to the project area. Specifically, two of the five EDís (ED 929.0.339 and ED 930.0.347) representing Hispanic populations, as identified in Table 5, exceed the 50 percent criteria. Because there are no residences along the west side of 51st Avenue, the proposed improvements would not directly impact any potential Title VI residences.

The proposed improvements would include the removal/relocation of project-area businesses. ADOT conducted surveys of businesses to evaluate the potential to impacts to Title VI populations through the loss of employment, removal of a minority-owned business, or impacts to these populations as customers. Thirty-one business were surveyed during ADOTís investigation (refer to Figure 12)**.** The survey was conducted in-person and included a questionnaire with specific questions about ownership, employees, and customers with respect to categories including race or ethnicity, low-income, mobility disability, female head of household, and elderly. Of these businesses surveyed, 11 were businesses located on the west side of 51st Avenue that would be impacted by the Preferred Alternative. Survey results indicated that these businesses were primarily non-minority owned, but employed some minority populations, and served some minority customers. The results of this survey concluded that the proposed improvements would not disproportionately impact any Title VI populations as a direct result of the removal/relocation of project-area businesses with the Preferred Alternative.

The proposed improvements would not divide neighborhoods or prevent any of these minority or low-income populations from accessing local schools, community services, or other local community functions. The project could improve community cohesion, because of the elimination of the six-legged intersection, resulting in an improved pedestrian environment, and the addition of sidewalks in segments of the project area where they currently do not exist. Landscaping of detention basins and embankments would also improve the aesthetic quality of the area, also potentially improving community cohesion. Therefore, the proposed project would not disproportionately impact minority, elderly, mobility disability, low-income, or female as a head of household populations.

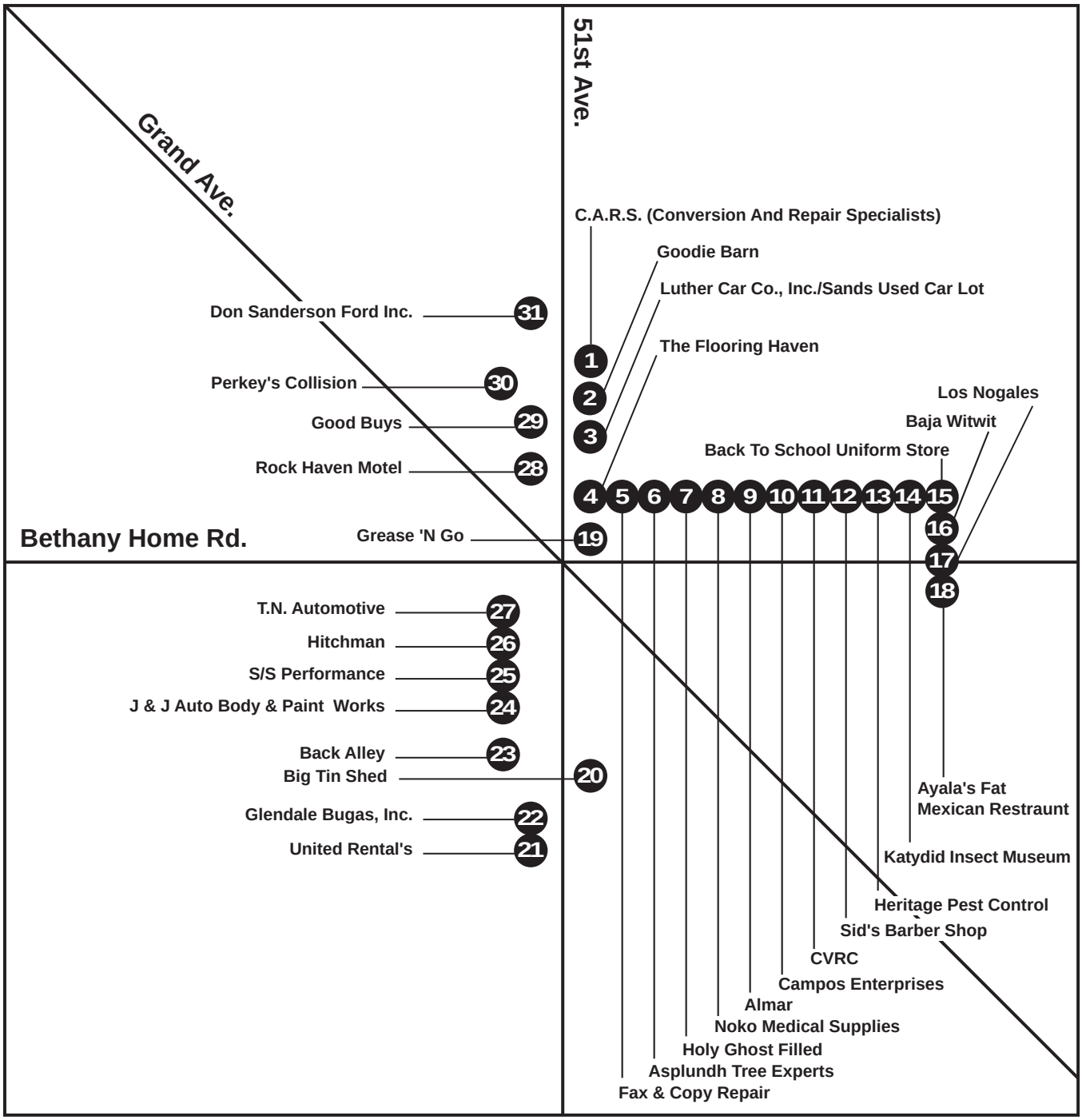


Figure 12. Project Area Businesses

NORTH

D. Cultural Resources

A number of Federal and State Acts have been established to provide protection for cultural resources and to ensure ìfuture generationsî a genuine opportunity to appreciate and enjoy the rich heritage of our Nation (Public Law 89-665). Cultural resources (historic properties) must be evaluated under each of these Acts to ensure adequate protection of our cultural heritage. In addition to acts that protect historic properties, the American Indian Religious Freedom Act, 1978 (AIRFA), guarantees access to religious or sacred sites that are located on Federal land.

Historic properties include prehistoric and historic districts, sites, buildings, structures or objects included in or eligible for inclusion in the National Register of Historic Places (NRHP). Historic properties may be eligible for nomination to the NRHP if they ì...possess integrity of location, design, setting, materials, workmanship, feeling and association...î and if these resources are either associated with (A) significant themes in history, (B) significant persons in history, (C) embody distinctive construction characteristics or works of a master, and/or (D) have the potential to yield information important to history or prehistory.

Three cultural resources surveys have occurred within the project area; one hundred percent of the project area has been surveyed. An archaeological survey conducted in 1989 did not locate any archaeological remains (Curtis 1989). An historic building survey, which covered a portion of the current project area, was conducted in 1992 (Woodward 1996). ADOT performed a Class III intensive pedestrian survey of the entire project area. The results of the third survey are reported in ***A Cultural Resources Survey Of Four Intersections Along Grand Avenue (27th Avenue and Thomas Road, 43rd Avenue and Camelback Road, 51st Avenue and Bethany Home Road, and 91st Avenue And SR 101 Loop), Maricopa County, Arizona***. (Grafil 2000). In addition, an addendum report was prepared to address the additional concern relative to the Federal Compress and Warehouse cotton processing complex located southwest of the 51st Avenue and Bethany Home Road intersection (Grafil 2000).

Fourteen (14) properties and two historic alignments have been identified within, or immediately adjacent to the project area. Of the fourteen identified properties within or adjacent to the current project area, eleven are houses and/or structures that are recommended ineligible for inclusion on the NRHP. The three remaining structures consist of two now demolished early 1900s structures, and a water tower (the Horton Water Tower). The two historic alignments, Grand Avenue and the BNSF railroad, have been determined ineligible for inclusion on the NRHP by SHPO.

Two structures were identified during a 1992 historic resource survey of the project area. Both structures date to the early 1900s and are now demolished. The Alex L. Silva Farmhouse and the unnamed house are located east of the 51st Avenue and Bethany Home Road intersection, between Grand Avenue and Bethany Home Road. Both of these sites are located outside, but adjacent to the project area. The Alex

L. Silva farmhouse area may be now considered an archaeological site, and is recommended potentially eligible for inclusion on the NRHP under Criterion D.

The Horton Water Tower is a contributing element of the Federal Compress & Warehouse Company, a local cotton processing company. This district consists of the extant elements of the Federal Compress & Warehouse Companyís industrial complex. FHWA and ADOT recommended the Federal Compress and Warehouse complex be considered eligible for the NRHP as an industrial historic district under Criteria A and C. The complex is associated with the post-World War II development of large-scale, mechanized agribusiness in America and the growth of the cotton industry in the Southwest. The design of the complex illustrates operational and efficiency principles of large agribusiness warehouses of the time.

The proposed improvements for the Grand Avenue, 51st Avenue, and Bethany Home Road intersection would include the construction of a landscaped detention basin at the undeveloped, northern end of the Federal Compress and Warehouse Companyís complex. The basin has been designed to avoid all of the complexís buildings and structures, including the Horton Water Tower. SHPO has agreed with the eligibility recommendations and that the proposed improvements at this location would not adversely affect any of the characteristics that contribute to its NRHP eligibility. In addition, SHPO has agreed that the eleven other historic buildings located within or adjacent to the project area are ineligible for inclusion in the NRHP. The SHPO concurrence letter dated March 30, 2001, is attached in Appendix B.

A Programmatic Agreement (PA) has been prepared and executed to address this project and the other five federally funded proposed intersection improvement projects within the Grand Avenue corridor (refer to Appendix B). This PA provides a detailed agreement of survey, testing procedures, and if necessary, data recovery including the documentation of historic buildings and structures. The PA ensures that ADOT and FHWA adhere to all laws as defined in 36 Code of Federal Regulations (CFR) 800.14 (1) (b) (v). Therefore as defined in the conditions of the PA, the proposed project would not substantially impact cultural resources within the project area.

According to ***Arizona Department of Transportationís Standard Specifications for Road and Bridge Construction***, Section 107 Legal Relations and Responsibility to Public (2000 Edition) (Stored Specification 107.05 Archaeological Features), if previously unidentified cultural resources are encountered during activity related to the construction of the project, the contractor would stop work immediately at that location and would take all reasonable steps to secure the preservation of those resources and notify the ADOT Engineer. The Engineer would contact the Environmental Planning Group immediately and make arrangements for the proper treatment of those resources. ADOT would, in turn, notify the appropriate agency(ies) to evaluate the resource.

E. Section 4(f) Resources

Section 4(f) of the US Department of Transportation Act of 1966 states that the FHWA ìmay approve a transportation program or project requiring publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance, or land of a historic site of national, state, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if there is no prudent or feasible alternative to using that land and the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the useî (49 U.S.C. 303).

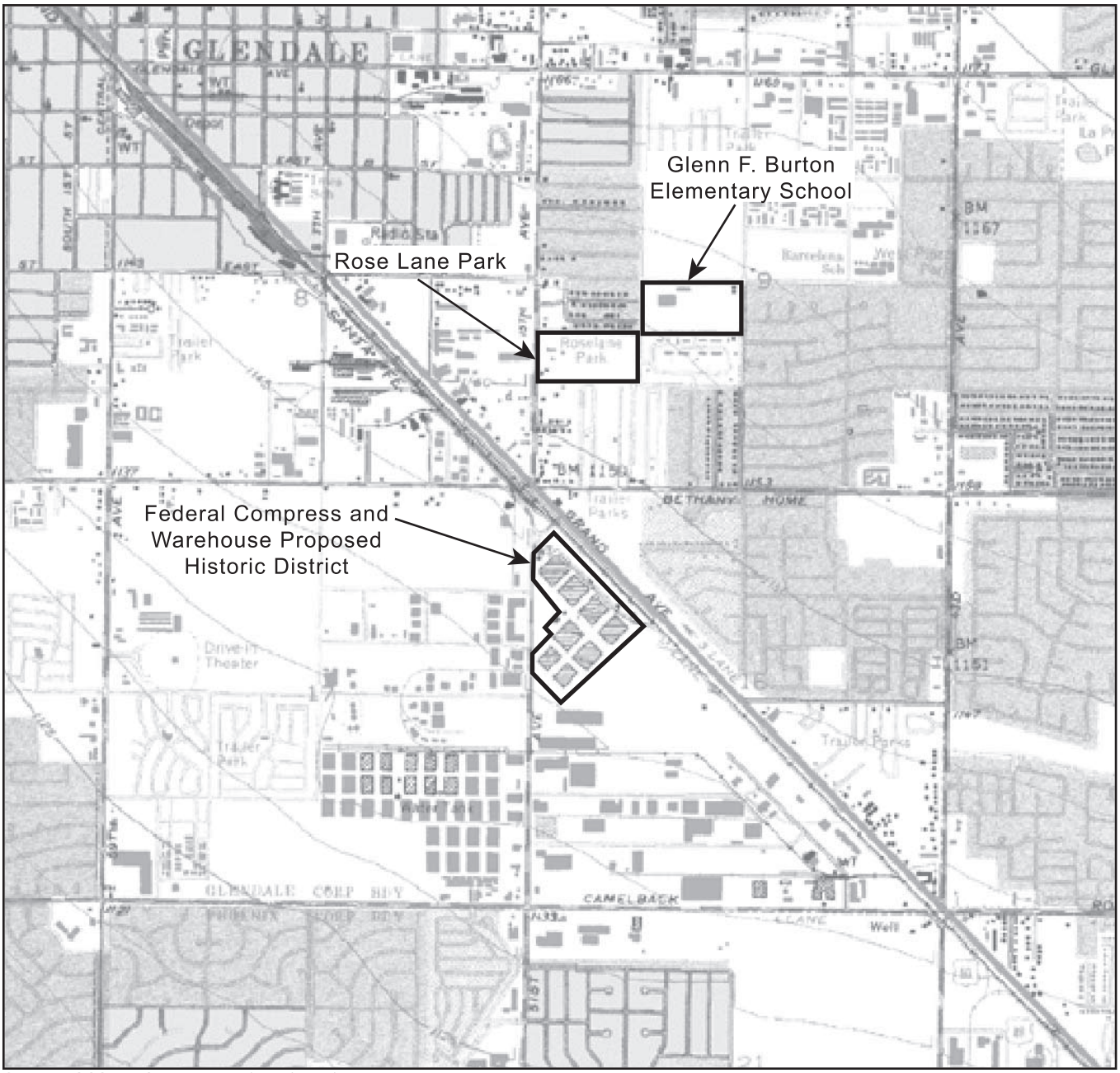
A ìuseî of a Section 4(f) resource, as defined as in 23 CFR 771.135 (p) occurs: (1) when land is permanently incorporated into a transportation facility, (2) when there is a temporary occupancy of land that is adverse in terms of the statuteís preservationist purposes, or (3) when there is a constructive use of land. A constructive use of a Section 4(f) resource occurs when the transportation project does not incorporate land from the Section 4(f) resources, but the projectís proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. For example, a constructive use can occur when:

1. the projected noise level increase attributable to the project substantially interferes with the use and enjoyment of a noise-sensitive facility of a resource protected by Section 4(f).

2. the proximity of the proposed project substantially impairs aesthetic features or attributes of a resource protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the resource. An example of such an effect would be the location of a proposed transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historical building, or substantially detracts from the setting of a park or historic site which derives its value in substantial part due to its setting; and/or

3. the project results in a restriction on access which substantially diminishes the utility of a significant publicly owned park, recreation area or historic site.

There is no wildlife and waterfowl refuge located within the project area. However, a publicly-owned park (Rose Lane Park), a school (Glen F. Burton Elementary School) whose facilities are open to the public, and a historic district (Federal Compress and Warehouse Historic District) are located within or immediately adjacent to the project area (Refer to Figure 13).



Source: USGS 7.5' Glendale Ariz. (1957/ 1982)

Key

4(f) Resource

NORTH

Figure 13. Section 4(f) Resources

Rose Lane Park is located at the north end of the project area. A noise analysis was completed and is available upon request (refer to Section IV, G. Noise). This report included the monitoring of two potential noise receptor sites within the park boundaries (refer to Figure 14). Conditions were evaluated at Rose Lane Park to ascertain if Section 4(f) proximity impacts could apply to the proposed improvements.

A proximity impact could occur when noise levels either reach or exceed the acceptable Noise Abatement Criteria (NAC) guidelines for Category B land uses. The existing sound level at Rose Lane Park is 70 dBA, while the design year 2020 No Action Alternative is 71 dBA. Although the projected hourly sound level within Rose Lane Park exceeds the dBA threshold at Receptor Site 4, the proposed improvements would actually reduce projected noise volumes in 2020 at this site from 71 dBA to 69 dBA. This would be a 2 dBA reduction over the No Action Alternative and 1 dBA less than the existing conditions. The reduction in sound levels is due to the shifting of the 51st Avenue alignment to the west and the addition of jersey barriers to the grade-separation structure.

Even though the noise levels would be reduced with the Preferred Alternative when compared to the No Action Alternative at Rose Lane Park, ADOT evaluated potential noise mitigation at this site (Receptor Site 4, Table 12, Figure 14). A 7.5 foot high by 420 feet long barrier located along the western property line of the park would provide a reduction of 5 dBA and mitigate noise levels below the 64dBA threshold. This reduction would be acceptable according to ADOT Noise Abatement Policy. The cost of the barrier would be approximately 60,000 dollars. The City of Glendale has indicated to ADOT that the City does not desire the construction of a noise wall along the 51st Avenue frontage of the park. According to the City, Rose Lane Park is a landscaped open space/recreation area, and they would prefer that this park be maintained open to public view from the adjoining street in lieu of the construction of any sound barrier. A copy of their correspondence letter dated July 3, 2001 is included in Appendix B.

Access to the park would not change from the existing access points provided. Notable visual changes in the setting of the park would occur due to the unobstructed view of the grade-separation 51st Avenue structure from park facilities. The northern portion of the proposed elevated construction improvements would border the southwest property line of Rose Lane Park. The proposed improvements would include the construction of a detention basin, and the tie-in of the grade-separation overpass with 51st Avenue, where the facility would return to existing grade. Trees and additional landscaping would be planted along the southwest corner of Rose Lane Park, adjacent to 51st Avenue, to minimize the view of the overpass structure from the park. ADOT would coordinate this landscape design with the City of Glendale. The detention basin would also be landscaped and screened from the park. Based on the evaluation of direct and proximity impacts, there would be no constructive use of the park.

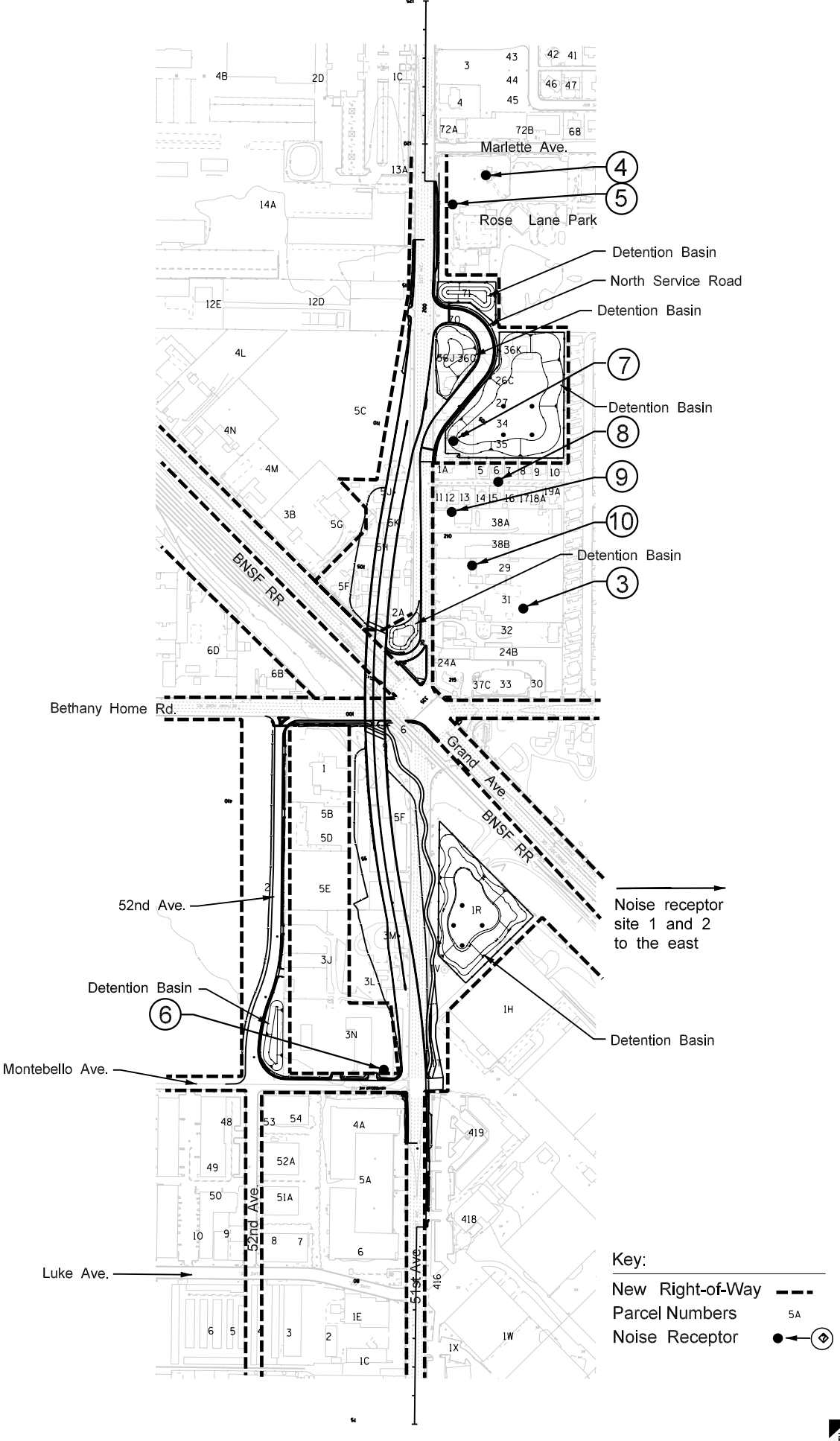


Figure 14. Noise Receptor Sites

The Glen F. Burton Elementary School could be indirectly impacted due to the proposed detour route associated with the project. Access to the Glen F. Burton Elementary School is provided on Maryland Avenue, east of 49th Avenue. Although the detour route would not directly impact the access to this facility, the increase of traffic volume could delay travel times for some individuals or cause individuals to alter their travel route to access these facilities. Other proximity impacts could include increased noise levels. The detour would occur during nighttime hours between 8:00 p.m. and 5:00 a.m. and/or on weekends when the schoolís facilities would generally not be in use by the public. Based on the Noise Study Technical Report completed by ADOT in August 2000, and the evaluation of other direct and proximity impacts, the proposed improvements would not result in the constructive use of this Section 4(f) resource.

In accordance with the FHWA Section 4(f) Policy Paper dated September 24, 1987, and revised on June 7, 1989, the proposed project would not constitute a constructive use of the Federal Compress and Warehouse Historic District because of the following analysis:

ìNormally, Section 4(f) does not apply where a property is not individually historic, is not an integral part of the historic district in which it is located, and does not contribute to the factors which make the district historic. The property and the district must be carefully evaluated to determine whether or not such a property could be occupied without adversely affecting the integrity of the historic district. If the occupancy of the property adversely affects the integrity of the district, then Section 4(f) would apply. Appropriate steps (including consultation with the SHPO) should be taken to establish and document that the property is not historic, that it has no value in the context of the historic district, and its occupancy would not adversely affect the integrity of the historic district.î

The proposed improvements would include the construction a landscaped detention basin at the undeveloped, northern end of the Federal Compress and Warehouse Historic District. To insure adequate protection and minimize harm to this historic resource, the basin has been designed to avoid all of the complexís buildings and structures, which include the Horton Water Tower. None of the elements that make the complex register-eligible would be affected. The SHPO agreed with this finding in their review of the ADOT report entitled ***Addendum to: A Cultural Resources Survey of Four Intersection along Grand Avenue (27th Avenue and Thomas Road, 43rd Avenue and Camelback Road, 51st Avenue and Bethany Home Road, and 91st Avenue and SR 101 Loop), Maricopa County, Arizona.*** This determination was agreed to by SHPO and FHWA.

All reasonable and feasible efforts to avoid and/or minimize harm, both directly and indirectly, have been considered for Rose Lane Park, Glen F. Burton Elementary School, and the Federal Compress and Warehouse Historic District. The proposed project would not substantially change the visual character or quality of the 4(f) properties. Additional landscaping would be provided to minimize any visual obtrusion created by the proposed improvements. A noise analysis indicated that no substantial impacts would

occur, and ADOTís evaluation of noise walls to bring the noise levels at Receptor Site 4 at or below the 64dBA threshold would not be necessary as recommended by the City of Glendale. In addition, the proposed improvements would include a minor use of property within the register-eligible historic district, but this use would not have a substantial impact of the overall integrity of the district or built features that make the district register-eligible. In addition, the proposed project would not substantially impact access or diminish the use of any of these properties. Therefore, the proposed project would not substantially impact any Section 4(f) resources within or adjacent to the project area.

F. Air Quality

The 1990 Clean Air Act Amendments and the National Environmental Policy Act (NEPA) require that air quality impacts be addressed in the preparation of the environmental document. The level of effort utilized to evaluate these impacts may vary from a simplified description to a detailed microscale analysis depending on factors such as the type of environmental document to be prepared, the project location and size, the meteorology of the project area, the air quality attainment status of the area, and the State Air Quality Standards.

The air quality analysis for the proposed improvements to 51st Avenue at the Grand Avenue and Bethany Home Road intersection focused on vehicle emissions of carbon monoxide (CO). Other pollutants, such as particulate matter and oxides of nitrogen are also components of vehicular emissions; however, the impacts of CO are most easily assessed and provide a convenient measure of air quality impact.

Predicted maximum 1-hour and 8-hour concentrations of carbon monoxide were calculated for the current traffic conditions and roadway configurations, the estimated traffic conditions in 2020 with the current roadway configurations (No Action Alternative), and the estimated traffic conditions and preferred alternative in 2020. Under the No Action Alternative, maximum predicted 1-hour concentrations of CO generally were lower than for the current predicted concentrations due to the offset in the increase in traffic volume projected for 2020 by the reduction in the emissions factors for 2020. Existing data indicates that the 1-hour concentrations range between 4.7 and 9.9 parts per million (ppm), while the 2020 No Action Alternative and the Preferred Alternative ranged between 4.7-9.2 ppm and 4.6-7.8 ppm, respectively. Under the National Ambient Air Quality Standard (NAAQS) guidelines, the acceptable limit for CO concentration for the 1-hour averaging time is 35.0 ppm (refer to Table 10).

Predicted maximum 8-hour concentrations associated with the preferred alternative were also lower than those values obtained for the existing conditions, and were lower than the 2020 No Action alternative. The CO concentrations predicted for both the 2020 No Action and the preferred alternative are below the NAAQS

(Refer to Table 10). The proposed improvements to 51st Avenue at the Grand Avenue and Bethany Home Road intersection are expected to reduce long-term impacts of the air quality of the area.

Table 10. Results of Air Quality Modeling

Scenario Modeled	Year	Maximum PM Peak Hour CO Concentration (ppm)[1]	
		1-hour Averaging Time	8-hour Averaging Time
NAAQS (acceptable limit)	N/A	35.0	9.0
Existing	2000	4.7-9.9	3.3-6.9
No Action Alternative	2020	4.7-9.2	3.2-6.4
Preferred Alternative	2020	4.6-7.8	3.2-5.5

[1] parts per million (ppm)

The proposed project is located within the Maricopa County non-attainment area for particulate matter less than 10 microns (PM_{10}), carbon monoxide (CO), and ozone (O_3). A project located within this non-attainment area can not cause or contribute to a violation or increase the frequency or severity of an existing CO or PM_{10} violation. In addition, the project is included in the approved Transportation Improvement Program (TIP) for ADOTís Fiscal Year 2001-2005, approved July 26, 2000, which conforms to the State Implementation Plan and the Federal Implementation Plan.

Short term impacts to CO may occur during construction due to the interruption of normal traffic flow. Efforts should be made to reduce queuing, especially during the peak travel hours. Impacts to CO associated with proposed alignment may be considered very minor. Short tem impacts to particulate matter (PM_{10}) may also occur during the construction phase, but these impacts may be reduced through using watering or other dust control measures. The contractor would adhere to Maricopa Rule 310 and 360 regarding fugitive dust emissions and new source performance standards, respectively, during construction. In addition, the contractor would be responsible for obtaining any necessary asbestos permits for demolition of any structures, if applicable. Therefore, the proposed improvements would not substantially impact the regional or local air quality or violate the federal and state NAAQS standards.

G. Noise

An analysis of potential noise impacts was conducted within the proposed project area, pursuant to the ADOT Noise Abatement Policy (NAP), dated March 21, 2000, and in accordance with the provisions of Title 23 of the Code of Federal Regulations (CFR) Part 772 - Procedures for Abatement of Highway Traffic Noise

and Construction Noise. FHWAís NAC are delineated by land use categories and their associated acceptable exterior noise levels (in dBA[1]) (Table 11).

Table 11. Noise Abatement Criteria
Hourly (h) A-Weighted Sound Level in Decibels (dBA)

Activity Category	Description	Laeq/h
A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities are essential if the area is to continue to serve its intended purpose.	57 dBA (Exterior)
B	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.	67 dBA (Exterior)
C	Developed lands, properties, or activities not included in Categories A or B.	72 dBA
D	Undeveloped lands	none

Noise measurements were taken at potentially impacted areas within the project area (refer to Figure 14). The NAC land use categories that apply are B (residences), and C (commercial businesses). FHWA noise abatement guidelines state that abatement strategies should be considered when the noise levels ìapproachî, or exceed 67 dBA for a category B land use, or 72 for a category C land use. The ìapproachî threshold for the project area, as defined by ADOT, is 3 dBA. Therefore, 64 dBA for a category B land use, and 69 dBA for a category C land use, respectively. These guidelines also state that noise abatement should be considered when the noise levels ìsubstantially exceed the existing noise levelsî. This criterion as defined by ADOT is the increase of 15 dBA or more above existing conditions. ADOTís policy does not provide for mitigation of commercial sites.

The comparison between the existing conditions at 51st Avenue and Bethany Home Road and the No Action Alternative (refer to Section II) demonstrates that there are seven sites currently impacted with at least 64 dBA (Table 12). The existing noise level data indicates that six sites reach or exceed the NAC limits for Category B land uses, and one site exceeds NAC limits for Category C land uses. The shaded numbers in the following table identify these receptor sites.

[1] dBA refers to the sound levels measured in decibels on the A-scale of a sound meter. A-weighting of decibels is related to how the human ear responds to different frequencies.

Table 12. Projected Noise Levels (dBA)					
Receptor Site Location	Noise Activity Category	Modeled Existing Conditions (1998) (dBA)	No Action Alternative (2020) (dBA)	Preferred Alternative (2020) (dBA)	dBA Increase Over Existing Conditions
1	B	58	60	59	1
2	B	58	60	59	1
3	B	69	71	63	-4
4	B	70	71	69	-2
5	B	63	64	63	0
6	C	71	75	79	8
7	B	72	72	68	-4
8	B	64	65	64	0
9	B	70	71	66	-4
10	B	65	66	62	-3

Source: ADOT Noise Report 2000.

Mitigation options to reduce the potential impacts to Rose Lane Park (Receptor Site 4, Table 12 and Figure 14) were evaluated by ADOT. A 7.5 foot high by 420 feet long barrier was evaluated along the western property line of the park. This barrier would provide a reduction of 5 dBA and would mitigate noise levels below the 64 dBA threshold, which is acceptable according to ADOTís Noise Abatement Policy (NAP). The cost of the barrier would be approximately 60,000 dollars. The City of Glendale has requested that no noise walls should be constructed because the park is a landscape open space/recreation area. The City would prefer that this park be maintained open to public view from the adjoining street. A copy of this correspondence is included in Appendix B.

The sound levels at the residences located on Cavalier Drive (Receivers 7, 8, and 9) are also predicted to exceed the ADOT NAP for the design year 2020 under the No Action Alternative by 1 to 8 dBA. These same three receiver sites would reach or exceed ADOTís NAP by 0 to 4 dBA with the Preferred Alternative. The reduction in noise levels of approximately 4 dBA overall at Receivers 7, 8, and 9, is due to the fact that the 51st Avenue alignment would be shifted to the west of its current alignment and jersey barriers would be constructed as part of the proposed improvements. This would add sufficient distance between noise receivers and traffic. Even though noise levels would be lower with the construction of the proposed improvements than with the future No Build Alternative, two noise abatement alternatives were evaluated by ADOT.

Barrier Alternative 1 proposes a barrier on the property lines of Receivers 7 and 9. This barrier would have to be separated into two barriers to allow for access to and from Cavelier Drive. Neither wall could be constructed more than 100 feet in length to allow for access to abutting properties along 51st Avenue. In addition, the barrier at a height of 20 feet would still not meet ADOTís noise reduction goal of a 5 dBA.

Barrier Alternative 2 proposes a barrier 5 feet in height on top of the 3-foot high jersey barrier (a total of 8 feet) on the east side of the 51st Avenue overpass. The 700-foot long barrier would only meet the 5 dBA goal for Receiver 7 (one benefitted receiver), which results in a cost per benefitted receiver estimate of approximately $66,000. This barrier would exceed the recommended cost of abatement; therefore, no noise mitigation would be recommended for Receiver 7.

In summary, although noise levels exceed the federal and state NAC guidelines, no noise barriers are being recommended to mitigate for these impacts. Existing noise levels exceed the NAC threshold. The construction of the proposed improvements would actually reduce the dBA levels at Receivers 7 and 9, and would be the same at Receiver 8 (refer to Table 12) in 2020. Although the dBA at Receiver 6 does increase from the existing condition of 71 dBA to 79 dBA with the proposed improvements, ADOTís policy does not currently mitigate for noise impacts to Category C land uses as represented at this site. Overall, it is not anticipated that construction of the proposed improvements would substantially impact the noise quality of the project area.

H. Landscape/Vegetation Removal/ Invasive Species

Under Executive Order 13112 dated February 3, 1999, projects which occur on Federal Lands or are Federally funded must: ìsubject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded.

In accordance with Executive Order 13112, the project area was surveyed by a qualified invasive weed authority, and it was determined that there are no listed invasive species within the project boundaries. Therefore, this project would not result in the spread of invasive species. The existing right-of-way has been previously cleared of native vegetation for the construction of the respective roads, residential uses, commercial, and industrial development within the proposed project limits and surrounding area. Additional right-of-way would be required for the construction of the proposed improvements. The boundaries required to construct the proposed improvements would be cleared and grubbed. In order to prevent the introduction of invasive species, all earth-moving and hauling equipment would be washed prior to entering the

construction site. All embankment slopes would be landscaped with low-water use plants and covered with decomposed or crushed granite. An irrigation system would be needed to establish and maintain the plants. Erosion control would be in accordance with ADOT's Standard Specifications and Section 402(p) of the Clean Water Act. The proposed project would not impact vegetation or any known noxious weed species within the proposed project area.

I. Prime or Unique Farmland

The Farmland Protection Policy Act of 1981 (FPPA) was implemented to insure that Federal agencies ìminimize the extent to which programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses and to assure that programs are administered in a manner that, to the extent practicable, will be compatible with State, local government, and private programs and policies to protect farmland.î

The 1989 FHWA Policy Paper, entitled Guidelines for Implementing the Final Rule of the Farmland Protection Policy Act for Highway Projects, specifically addresses impacts to farmlands from transportation-related projects. This policy established guidance for special situations which have bearing on the applicability of the FPPA definition of ìfarmlandî as it relates to urban areas as follows:

ìPrime farmland which is already in or committed to urban development is by definition farmland not subject to the FPPA. Unique farmlands and farmlands of statewide or local importance are, however, subject to the FPPA (even in areas already in or committed to urban development). Where the right-of-way required for a highway project is wholly within a delineated urban area and the project requires no property from unique farmlands, or farmlands of statewide or local importance, the FPPA does not apply. The completion and processing of Department of Agriculture Form AD 1006 are not necessaryî (FHWA, 1989).

The project area does contain agricultural fields that would be impacted by construction activities (refer to Figure 8). According to the Natural Resources Conservation Serviceís Chandler Field Office the land within the proposed project area has been designated as prime farmland (Wilson 2000). Under the definitions of the FPPA, and due to the fact that the agricultural land according to City of Glendale planning documents has been designated for industrial/commercial use for future land use planning, the project is exempt from the requirements of the FPPA (7 USC 4202, Rules, Title 7, Code of Federal Regulations, Part 658). Therefore, the proposed project would not substantially impact any prime, unique, or farmland of statewide or local significance.

J. Visual Resources

In general, the visual or scenic quality within the project area can be characterized as an area dominated by older commercial and industrial land uses typical of the Grand Avenue corridor. These buildings are constructed and painted a variety of materials and colors, respectively. There is a limited amount of landscaping at commercial and industrial businesses. Because the terrain within the project area is relatively flat, distant views of mountains can be seen from the project area. Some of the most distinct views include the Estrella Mountains to the south and the White Tank mountains to the west. Prominent built features within the project area include residential, commercial and industrial development, the BNSF railroad tracks, traffic lights, street lighting, billboards, and the Horton Water Tower.

The construction of the elevated grade-separation structure and associated service road improvements would create a notable change to the visual character and quality of the project area. The grade-separation structure would be highly visible to motorists, and to the adjacent residential and commercial properties, but landscaping would be completed along all embankments throughout the project area to reduce visual intrusion. Because of modern design and improvements to the existing older traffic facilities, the general visual character would notably change and the visual quality of the project area overall would be improved. Facilities such as the large mast arms that currently are provided near the train crossing approaches are visually obtrusive because of their size and unique design. These features would be replaced with a more modern design, which would also improve the overall visual quality of this intersection. The result of these changes is likely to improve future marketability and the vitality for local residents. Therefore, the proposed improvements could positively change the visual quality, but as a minimum would not substantially impact the visual character or quality of the project area.

K. Drainage and Floodplain Considerations

Flood Insurance Rate Maps (FIRM) have been prepared and published by Federal Emergency Management Agency (FEMA) for the project area. Flood prone areas have also been determined by the Maryvale Area Drainage Master Plan (ADMP). There is a history of flooding along the railroad paralleling Grand Avenue in the vicinity of 51st Avenue and Bethany Home Road. The drainage pattern in this area flows from the northeast to the southwest. Because the area is highly developed, streets convey water until the street capacity is exceeded and then the water sheet flows through the area. The BNSF railroad intercepts the water flowing from the northeast and creates a ponding area between Grand Avenue and 51st Avenue. A high point at the intersection of Grand Avenue, 51st Avenue and Bethany Home Road prevents water from overtopping Grand Avenue. Water flowing south on 51st Avenue and west on Bethany Home Road is diverted at this intersection to flow southeast along Grand Avenue.

Impacts on floodplains typically occur when the topography within a floodplain is substantially modified either by placement or removal of materials within the floodplain. Because this project would involve the construction of a grade-separation structure, and would require the use of fill material for embankments on each end of the overpass structure, six detention basins and associated channels/culverts would be constructed to contain potential flooding (refer to Figure 7). In addition, roadway curbs would be designed to allow rainfall to drain off of the roadway surface. Drainage facilities would be designed in accordance with ADOTís policies and standards. The objective would be to limit the potential for effects to adjacent properties and existing drainage patterns during times of substantial rainfall and associated run-off.

Storm water will be routed to detention basins or to storm drain facilities already in place. These facilities would be beneficial as the improvements would aid in the drainage and potentially alleviate some large scale flooding in areas. Therefore, the proposed improvements would not substantially impact the associated floodplain, and would likely aid in the area drainage and potentially alleviate some large scale flooding.

L. Water Resources and National Pollutant Discharge Elimination System

Because five or more acres of land would be disturbed, a National Pollutant Discharge Elimination System permit would be required. The ADOT Roadside Development Section would determine who would prepare the Storm Water Pollution Prevention Plan. The District Construction Office and contractor would submit the Notice of Intent and the Notice of Termination to the Environmental Protection Agency (EPA) and copies to Arizona Department of Environmental Quality (ADEQ). A Notice of Intent would be submitted to the EPA at least 48 hours prior to the start of construction.

During construction, care would be taken to ensure that construction materials would comply in accordance with ***Arizona Department of Transportation Standard Specifications for Road and Bridge Construction Section 104.09*** (2000 edition). Excess concrete, curing agents, form work, loose embankment materials, and fuel would not be disposed of within the project boundaries. Therefore, the proposed improvements would not impact any jurisdictional waters of the United States, as defined by the U.S. Corps of Engineers and Section 404 of the Clean Water Act.

M. Materials Sources

The estimated quantity of fill materials required for this project would be 176,000 cubic yards. The construction of the six detention basins would provide 48,000 cubic yards. If this material is unsuitable or additional borrow material is needed, sources of borrow material from the Salt and Gila Rivers could be considered. Any material sources required for this project outside of the project area would be examined

for environmental effects, by the contractor, prior to use, through a separate environmental analysis in accordance with ***Arizona Department of Transportationís Standard Specifications for Road and Bridge Construction,*** Section 1001 Material Sources (2000 Edition) (Stored Specification 1001.2 General). The proposed improvements would not impact any related material sources.

N. Construction Debris Disposal

Excess waste material and construction debris would be disposed of at sites supplied by the contractor in accordance with ***Arizona Department of Transportationís Standard Specifications for Road and Bridge Construction*** Section 107.11, Protection and Restoration of Property and Landscape (2000 Edition). Disposal will be made at either Municipal Landfills approved under Title D of the Resource Conservation and Recovery Act, Construction Debris Landfills approved under Article 3 of the Arizona Revised Statutes (ARS) 49-241 (Aquifer Protection Permit) administered by the Arizona Department of Environmental Quality, or Inert Landfills.

During construction, the contractor would give special attention to the effect of its operations upon the landscape and would take special care to maintain natural surroundings undamaged in accordance with ***Arizona Department of Transportationís Standard Specifications for Road and Bridge Construction,*** Section 104.09 (2000 Edition) and the Water Quality Standards in Title 18, Chapter 11 of the Arizona Administrative Code as administered by the Arizona Department of Environmental Quality. Due to the requirements set forth in the above mentioned regulations, the proposed project would not create or cause an impact as a result of construction debris disposal.

O. Hazardous Materials

A Preliminary Initial Site Assessment (PISA) was conducted for the presence of hazardous materials within the project area. The assessment included a field reconnaissance, review of applicable Federal and state agency records, and a review of aerial photographs. The PISA indicated that eight parcels would require additional assessment prior to construction. Additionally, three parcels indicated that a PISA would still be required. Other parcels were either previously cleared or cleared during this investigation. Any parcels requiring additional hazardous materials investigation would be completed by ADOT prior to right-of-way acquisition.

A Phase I Site Assessment is the industry standard to meet the ìdue diligenceî requirements of the Comprehensive Environmental Response, Compensation Liability Act (CERCLA). Requirements for Phase

I reports are defined in American Society for Testing and Materialís report ***E1527-00 Standard Practice fo Environmental Site Assessments: Phase I Environmental Site Assessment Process***.

According to ***Arizona Department of Transportationís Standard Specifications for Road and Bridge Construction***, Section 107 Legal Relations and Responsibility to Public (2000 Edition) (Stored Specification 107HAZMT, 01/15/93), if previously unidentified or suspected hazardous materials are encountered during construction, work would cease at that location and the ADOT Engineer would be contacted to arrange for proper assessment, treatment, or disposal of those materials. Such locations would be investigated and proper action implemented prior to the continuation of work in that location.

Because the proposed project would involve the identification and clean-up of hazardous sites or materials, the proposed project would be a beneficial impact to the project area concerning potential hazardous materials.

V. Secondary and Cumulative Impacts

The NEPA directs Federal agencies to examine the consequences of proposed activities in light of an overall goal to protect and enhance the human environment. These consequences are grouped into the general categories of secondary and cumulative effects.

A. FHWA Policy Statement and Guidelines

In April 1992, the FHWA Project Development Branch issued a policy paper titled Position Paper: Secondary and Cumulative Impact Assessment In The Highway Project Development Process. The FHWA and ADOT recognize the growing need to include analysis of indirect impacts in project environmental studies. The commitment to conduct comprehensive environmental and public interest decision-making requires the collection and presentation of all information relevant to a project, including its indirect consequences and contribution to area-wide change.

The following Secondary and Cumulative impacts sections only respond to those impacts that were originally considered to be either potentially adverse or beneficial. Elements without secondary or cumulative impacts were not discussed.

B. Secondary Impacts

Secondary effects are broadly defined by the CEQ as ìthose impacts that are caused by an action and occur later in time, or are farther removed in distance but are still reasonably foreseeable after the action has been completedî (40 CFR 1508.8). They comprise a wide variety of secondary effects such as changes in land use, economic vitality, and population density. Secondary impact issues relevant to this project include access, noise and visual quality. Secondary land use impacts were not considered because most of the project area has been developed for the last decade or longer, and most nearby vacant parcels would be purchased for the proposed improvements.

1. Multi-Modal Transportation Impacts and Access

If future planned RPTA bus routes are implemented along 51st Avenue, bus service routes would be likely required to utilize the proposed service roads to connect passengers to the existing Grand Avenue and Bethany Home Road bus routes. Consequently the future RPTA Yellow Line (Grand Avenue) may no longer function as it does today, and connections to other north-south bus routes, such as any proposed bus

routes on 51st Avenue, might not be possible. The proposed improvements would allow for the opportunity for an expressway-like bus service from remaining bus stop locations. Therefore, the impacts to regional transit service is anticipated to be minimal.

Specific commercial, retail, and residential marketability may improve within the project area due to the re-alignment of 51st Avenue, and the construction of new traffic facilities. Access points to the adjacent properties and known future expansion of the existing properties would be provided. Ingress and egress for both local residents and business employees and non-local motorists seeking access to these sites would improve. This could improve the economic vitality of the local businesses and future land uses at this location.

2. Visual Impacts and Economic Vitality

The proposed grade-separation structure would be in direct line-of-site at various locations of the surrounding neighborhood. This might impact to some degree, the future residential marketability, but landscaping would be provided to offset and improve the aesthetics of the structure and the local community. The structure would be constructed of modern design and materials. Conversely, this upgrading of traffic facilities throughout the project area overall would be an improvement to the general visual character and quality of the project area. The result of these changes is likely to improve future marketability and the vitality for local residents.

Parcels could also increase in value because of reduced traffic congestion and delay times, changes to access which would improve ingress and egress conditions for exporting or importing goods, or accessing neighborhoods. Because the true results of these improvements would not be known until sometime after completion, the overall future economic vitality of the project area is unknown, although impacts are not anticipated to be substantial. Therefore, the proposed project would not substantially impact the visual character or economic vitality of the project area in the future.

C. Cumulative Impacts

Cumulative effects are the combined impacts on the environment that result from the incremental effect of the proposed action when added to past, present, or reasonably foreseeable future actions within the immediate vicinity of the project area (40 CFR 1508.7). These impacts are less defined than secondary effects. The cumulative effects of an action may be undetectable when viewed in individual context of direct or indirect actions, but could add to a measurable environmental change. For this assessment, past actions are those considered to have occurred since 1990, and foreseeable future actions are based on

the best available information from the associated planning agencies. The majority of the development within the project area has occurred prior to 1990.

1. Population Growth and Transportation Facility Development

The West Valley is experiencing ongoing residential, commercial, and industrial development. The result of this growth is more population, employment, and revenue for the state and local jurisdictions, and more demand upon the areaís transportation facilities. The population in Arizona has grown steadily over the past 30 years, increasing from 1,775,399 persons in 1970 to 4,961,953 in 2000. Maricopa Countyís population has grown from 971,228 in 1970 to 2,122,101 as per the 1990 Census. According to the Arizona Department of Economic Security, the 2020 population in Maricopa County is estimated to grow to nearly 4,516,090 people. Transportation improvements contribute to future development site selection. Because Grand Avenue is not the sole arterial street connecting the West Valley, it is unlikely that any proposed improvements to Grand Avenue would greatly increase or contribute to development site selection. Other key links to the West Valley such as I-10, Loop 101, and the Loop 303, and any improvements made to these facilities in the future would more likely be contributors that could promote development in the West Valley.

The most influential future actions associated with this project are the proposed realignments of other intersections along Grand Avenue, and any future considerations for expansion or implementation of expressway facilities. ADOT is considering making improvements at a total of eight sites between I-17 and the Agua Fria Freeway, which include the following:

- 27th Avenue and Thomas Road
- 43rd Avenue and Camelback Road
- 51st Avenue and Bethany Home Road
- 55th Avenue and Maryland Road
- 59th Avenue and Glendale Avenue
- 67th Avenue and Northern Avenue
- 75th Avenue and Olive Road
- On-ramps to the Agua Fria (Loop 101L) from 91st Avenue at its intersection with Cactus Road

These proposed project sites are currently being evaluated. Depending on scheduling of other proposed improvement projects along the Grand Avenue corridor, construction-related traffic impacts could limit or potentially impact the overall function and use of Grand Avenue during these construction projects. Traffic control plans would mandate that all local access to businesses and residential areas would be maintained during construction. In addition, projects would be scheduled to limit overlapping and also to limit the overall impacts to the operation and function of the Grand Avenue corridor. Motorists could use other arterial

streets such as 55th Avenue and Glendale Avenue. This would require that motorists navigate around construction zones and would create longer travel times and inconvenience motorists. It is not anticipated that these construction impacts would be substantial because they would be temporary.

It is anticipated that traffic operations on Grand Avenue would be considerably improved after the completion of the eight improvement projects. Current and projected average ADT numbers and LOS classifications illustrate that these eight intersections operate at the poorest of traffic operation levels with substantial delay times usually greater than 1.3 minutes. The recommended intersection improvements would not only improve the LOS at each of the proposed project sites, but would also improve community mobility and access throughout the corridor.

Therefore, it is not anticipated that the proposed project would result in any substantial impacts as a result of any known traffic improvement projects or substantially impact, either adversely or beneficially, population growth in the West Valley.

2. Natural Environment

The most notable cumulative impacts with respect to the natural environment of the associated Grand Avenue projects are the results of channelizing drainage and detention of storm water. Storm water will be routed to detention basins or existing storm drain facilities. These facilities would be beneficial because they would aid in the areaís drainage and potentially alleviate some large-scale flooding near the proposed project sites. At a minimum, these drainage improvements would not increase area flooding. The proposed drainage facilities may also provide a link to future area-wide drainage planning being currently evaluated by the Flood Control District of Maricopa County and local jurisdictions.

Recently completed, ongoing, and future urban and suburban development, including highway construction, contribute toward the cumulative loss of undeveloped lands and changes to the natural environment. Because the proposed Grand Avenue roadway improvements would affect lands that have been previously disturbed, the proposed activities would not increase cumulative effects on biological resources in the region.

The project area is located within a non-attainment area for CO, PM_{10}, and O_3 air quality standards. The traffic forecasts used for the air quality analysis were based on the construction equipment and traffic generated by existing and anticipated future land uses within the project area. In addition, future year background pollutant conditions, based on regional air quality trends, were added to emissions generated by the project. The results of the analysis indicate that regional and localized air quality would not be adversely affected at any of the proposed project areas currently being evaluated. Therefore, it is not

anticipated that human health hazards and lower ambient air quality would result from the current or future construction projects proposed along Grand Avenue.

In summary, the proposed improvements would not substantially effect either adverse or beneficial, the natural environment of the project area with respect to floodplain, drainage, biological resources, or air quality.

3. Human Environment

Because of the potential for new development as a result of improved traffic circulation and access through the corridor, the social and economic impacts should be positive. Relative to Maricopa County, notable populations of minority groups and low-income persons occur within neighboring residential areas adjacent to the Grand Avenue corridor. These distinct populations, as defined by Executive Order 12898, would not be disproportionately impacted by any of the proposed projects. In general, access to public facilities would be maintained. As a result of the proposed improvements throughout the corridor, community cohesion would be impacted. It is not anticipated that these impacts would be substantial because the improvements that would be made would eliminate the six-legged intersection and improve the operation and function of the remaining intersection. This would reduce travel times through the intersection and may improve the communityís ability to travel between the northeast and southwest sides of Grand Avenue.

The possibility of new business development as a result of the improvements made to the corridor may increase job opportunities for these populations. As a result of these eight project sites and the improved operation and functionality of Grand Avenue, new job opportunities for low-income and minority populations could occur in the future. In addition, it is not anticipated that these projects would substantially alter neighborhoods or community character that are valued by low-income and minority populations through incremental development.

As a result of anticipated operational improvement and functionality of the Grand Avenue corridor, new development along the corridor may be encouraged. The shifting of roadway alignments would provide new opportunities at sites currently undeveloped, such as the agricultural land designated for future industrial use along the 91st Avenue on-ramp project. In addition, these proposed alignment changes could promote improvements or expansion of existing commercial and retail developments, because better traffic operations could encourage additional patronage to the corridor. Therefore, the cumulative impacts of these eight projects may improve or promote the development of nearby vacant lands, and encourage improvements to existing land uses within the Grand Avenue corridor while potentially improving the overall community character.

The RPTA bus line along Grand Avenue, the Yellow Line, may be altered with the completion of these grade-separation structures. The grade-separation structures may disconnect portions of Grand Avenue from other RPTA bus lines, although further evaluation would be completed in final design. As a result, the RPTA Yellow Line may no longer function as it does today. The positive result of this potential change is that expressway-like bus service would be possible. Even though the results of the impact to local transit service may be substantial, it is anticipated that these changes may be beneficial overall.

The visual quality of the existing Grand Avenue corridor is characterized by older commercial and industrial buildings, which are common throughout this segment of the corridor. Some of these existing developments would be acquired during right-of-way proceedings for the proposed realignment of the various intersections. The overall character and visual quality may be improved by the acquisition of parcels of lands where portions of these older commercial and/or industrial buildings occur and the landscaping of embankment and detention basins. New developments could potentially be constructed adjacent to these new roadway alignments or additions could be made to existing commercial or industrial facilities. Therefore, the cumulative impacts on the visual quality and character of the Grand Avenue corridor are anticipated to create a positive change.

In summary, the proposed project would not substantially effect distinct minority or other protected populations, land uses, regional public transit services, or the visual character of the corridor.

4. Cultural Environment

Development impacts on the cultural environment at each of the eight project sites along Grand Avenue also contribute to cumulative impacts. Because of the presence of historic and prehistoric properties and historic districts within the Grand Avenue corridor, careful consideration and evaluation of these features has been completed. Several properties were considered potentially eligible or eligible for listing on the NRHP. As a result of the PA between FHWA, ADOT and the SHPO, a detailed agreement would ensure that all laws are adhered to during and after evaluations of these properties. Any loss of prehistoric or historic features would represent only a fraction of the local, regional, or state resource base. Therefore, the proposed project or future known actions would not substantially impact the historic integrity or cause the fragmentation of historic districts.

VI. PUBLIC INVOLVEMENT AND PROJECT COORDINATION

A. Agency and Stakeholder Coordination

Coordination letters were sent to the following agencies and stakeholders:

- Arizona Department of Public Safety
- Burlington Northern Santa Fe Railway
- Maricopa Association of Governments
- City of Glendale
- City of Phoenix, RPTA
- Maricopa County Planning Department
- Maricopa County Environmental Services Department
- Flood Control District of Maricopa County
- Salt River Project
- Southwest Gas Company
- Cox Cable
- U.S. West Communication
- Department of Public Safety
- Outdoor Systems
- Glendale Union School District
- Phoenix Union School District
- Glendale Elementary School District
- Alhambra School District

An agency coordination meeting was held on March 20, 2000 at the City of Glendale City Hall. Issues and/or comments included the following: conflicting traffic movements due to the signal at Marlette Avenue, the drainage issues do not appear to be addressed, the change of Montebello Avenue to the 52nd Avenue extension for the 51st Avenue connection, and potential transfer difficulties caused by the proposed 51st Avenue overpass.

Coordination letter responses received during the public involvement process included a response from the Alhambra School District No. 68 (refer to Appendix B). In that letter, they mentioned that the school district was currently in the process of purchasing the parcel of land northeast of Grand Avenue, west of 49th Avenue, and south of Bethany Home Road for a future site of an elementary school. Project representatives with the City of Glendale indicated that no concept drawings, plans, or dates for construction have been submitted to the City of Glendale prior to or during the preparation of this EA. Regardless, this location is located outside of the project area.

The Alhambra School District mentioned that plans for improvements of the 51st Avenue at Grand Avenue and Bethany Home Road intersection should take into account the existing drainage problem or so that the

problem is not made any worse. The ADOT has addressed this problem by the construction of detention basins to collect run-off associated with this project (refer to Section III). In addition, the school district was concerned about the need to transport students back and forth across the Bethany Home Road and Grand Avenue intersection. These concerns are addressed by the ADOT in the traffic control plans for this project (refer to Section III). Traffic and access during construction would be maintained on 51st Avenue, Bethany Home Road, and Grand Avenue, except during setting of bridge girders and final tie-ins. At least two lanes in each direction would be provided. During this closure, a detour route would be provided. This detour would only occur during nighttime or weekends (refer to Mitigation Measures, Page v).

B. Public Involvement

One public meeting has been held for the 51st Avenue at Grand Avenue (US 60)/Bethany Home Road Design Concept and EA. This public meeting included the presentation of detailed engineer drawings and descriptions, and solicited public comments on these proposed configurations to be reviewed by ADOT. The public meeting was held at the Glen F. Burton Elementary School Cafeteria on Wednesday, March 22, 2000, from 6:00 p.m. to 7:30 p.m. The meeting was held to obtain public input regarding the social, economic, environmental, and design issues for the project. A total of 11 people attended the meeting. Notice of the public meeting was placed in the Arizona Republic on March 8, 2000.

The main concerns identified during the public meeting were southbound access from the Grand Avenue and Bethany Home Road intersection to 51st Avenue, and questions regarding amount of parcels and locations of these parcels required for this construction project.

A public hearing is scheduled to be held to provide the public the opportunity to comment on the Draft Environmental Assessment. A copy of the public hearing notice is included in Appendix C.

C. Project Preparers and Contributors

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